URACA GmbH & Co. KG
Sirchinger Str. 15 ▪ 72574 Bad Urach ▪ Germany
Tel +49 (0) 7125 133-0 ▪ Fax +49 (0) 7125 133-202
info@uraca.de ▪ www.uraca.de
Amtsgericht Stuttgart, HRA 360415
USt.-IdNr. DE 147 172 920 ▪ Steuer-Nr. 89 079 40 530
Zertifiziert nach DIN EN ISO 9000:2008 durch LRQA

Persönlich haftende Gesellschafterin:
URACA Geschäftsführungs GmbH, Bad Urach
Geschäftsführer:
Betriebs- und Marktwirt Johann Amon
Dipl.-Ing. (FH), Dipl.-Exportwirt (EA) Gunter Stöhr,
Dipl.-Betriebswirt (VWA) Richard Schmidhofer
Amtsgericht Stuttgart, HRB 360121

Operating manual

Motor drive test pump

EP601W100 (BG004077)
EP601D200 (BG004092)

URACA ref.-no.:
Custumer ord.no.:
RZ-No.:
Customer:

High Pressure Technology

Das Produkt hat unser Haus in einwandfreiem Zustand verlassen. Falls Sie Fragen haben, rufen Sie uns an.

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Declaration of Conformity

as defined by the EC Machinery Directive 2006/42/EC, Annex II 1 A

Our Ref. No_____

We here by declare that the electrical pump units of Series

EP601
EP602
EP603
EP605

comply with the regulations of the EC Machinery Directive 2006/42/EC

Applied harmonised Standards, see page 2.

11/04/2013
Date

i.V.
Carsten Weiß, Head of TE

i.V.
Herbert Queiser, Head of HDR

This EC Declaration of Conformity loses its validity if the system is converted or modified without our consent.

Brief description:

The above-listed pump units essentially comprise a fluid pump operating on the basis of the displacement principle and an electric motor serving as the drive.

Moreover, the units incorporate a safety valve resp. pressure adjustment valve. Other attachments may be attached to complement the unit.

Applied harmonised Standards, in particular

1) EN ISO 12100

   Safety of machinery – General principles of design – Risk assessment and risk reduction

2) EN ISO 4413

   Fluid technology – General rules and safety requirements on hydraulic systems and their components

3) EN ISO 4414

   Fluid technology – General rules and safety requirements on pneumatic systems and their components

4) EN ISO 13850

   Safety of machinery – Emergency stop – Principles for design

5) EN ISO 13857

   Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs

6) EN 349

   Machine Safety – Minimum Clearances for Avoidance of Crush Injuries to Parts of the Body

7) EN 809

   Pumps and Pump Units for Fluids;

   General Technical-Safety Requirements

8) EN 60204-1

   Electrical Equipment of Machines

9) EN 1829, Parts 1 and 2

   High pressure cleaner - High pressure water jet machines - Safety requirements -
   (Including hoses, hose lines, and joints)

Additional explanations:

1) The basic safety and health protection requirements according to annex I, Part 1 of the EC Machinery Directive 2006/42/EC have been applied with the engineering design and construction of these products.

2) The technical documentation has been complied in accordance with annex VII A of the EC Machinery Directive 2006/42/EC.

3) Offices of individual states will receive the special documentation on this complete / incomplete machine in electronic format upon justified request.

1 URACA Service Center – USC –

1.1 Introduction

Ladies and Gentlemen,

Congratulations to purchasing your URACA product.

Based on our experience of over 120 years in pump construction, we can confidently claim that you have opted for a state-of-the-art, robust and service-friendly machine manufactured by our company.

The large variety of our products does not allow us to keep all wearing and spare parts in stock. To avoid unnecessary downtimes, we recommend you stocking a spare parts package to be available for quickly needed maintenance and repair work. We will be glad to provide you with an appropriate offer for a package specifically for your machine upon your request.

As important as the machine itself, the reliability of service or after sales support acquired with the machine is just as essential.

We would like to briefly introduce our service team and our services to you with this correspondence.

1.2 Service contacts

Our service experts support you as competent contact partners:

- If you require quick help by phone in the event of a problem
- With engineering tasks
- With the identification, procurement and delivery of spare parts

Your contacts:

Jürgen Forschner
Tel.: +49 (0) 7125/133-447
Fax: +49 (0) 7125/133-369
Email: j.forschner@uraca.de

Claus Greiner
Tel.: +49 (0) 7125/133-231
Fax: +49 (0) 7125/133-369
Email: c.greiner@uraca.de

1.3 Spare parts

Our spare parts will reach you quickly, anywhere in the world.

- Comprehensive inventory at the parent plant, the service centres and selected representatives
- Spare parts shipment within 48 hours (rush service)

Your contact:

Gerlinde Holzapfel
Tel.: +49 (0) 7125/133-315
Fax: +49 (0) 7125/133-369
Email: g.holzapfel@uraca.de

Lisa Ehni
Tel.: +49 (0) 7125/133-355
Fax: +49 (0) 7125/133-369
Email: l.ehni@uraca.de

Svenja Locher
Tel.: +49 (0) 7125/133-390
Fax: +49 (0) 7125/133-369
Email: s.locher@uraca.de

1.4 Repairs by URACA

We handle the repair of all products of our entire product offering.

Your contact:

Holger Seiffert
Tel.: +49 (0) 7125/133-412
Fax: +49 (0) 7125/133-369
Email: h.seiffert@uraca.de

1.5 Repairs on site

We handle repair work on larger plants directly on site at your location. Quickest possible pin-pointing and detection of the problems that may have occurred as well as repair or replacement of defective parts enable you to restart your plant within the shortest amount of time, thereby significantly reducing your downtimes.

Your contacts:

Jürgen Forschner
Tel.: +49 (0) 7125/133-447
Fax: +49 (0) 7125/133-369
Email: j.forschner@uraca.de

Claus Greiner
Tel.: +49 (0) 7125/133-231
Fax: +49 (0) 7125/133-369
Email: c.greiner@uraca.de

1.6 Emergency Hotline

In emergency situations, you can reach us on Saturdays, Sundays and Holidays from 8:00 am to 4:00 pm at our service hotline +49 (0) 172/7185174.

We would be pleased to perform the required service tasks for you. We can gladly offer you a customized service contract which will save you pure cash, not only with the travel time to and from the site. Just give as a call.

We wish you many trouble-free hours of operation with your URACA machine. And in case something does happen, you can always rely on us to help you.

Yours sincerely

URACA-Service-Center

Hartmut Wiedemann

Service manager

Holger Seiffert

Your responsible sales office:

http://www.uraca.de/service/kundendienst-vor-ort.html

2 Clearance Certificate

2.1 Address data

Clearance Certificate for the examination and the return of used URACA products, their accessories or parts thereof.

Dear Customer,

in order to protect our employees against harmful effects due to residues of hazardous substances on returned parts we require some information from you about where the parts were used. Before we can process your return we would like you to fill this form in and then return by E-Mail, fax or post to the address below before sending the goods:

URACA GmbH & Co. KG
Service USC
Sirchinger Straße 15
Germany-72574 Bad Urach
E-Mail: service@uraca.de
Fax: +49 (0)7125/133-369

Many thanks for your cooperation.

Please give information in block letters:

Company:	_____	Product:	_____
Department:	_____	Parts-no.:	_____
Address:	_____	Comm.-no.:	_____
	_____	RZ-Nr.:	_____
Country:	_____		
Name:	_____		
Tel.:	_____		
Fax.:	_____		
Mobile:	_____		
E-Mail:	_____		

2.2 Substances specifications

Which hazardous substances (gases, liquids) did the URACA products, their accessories or parts come into contact with? Please answer by marking "Yes" or "No".

	Chemical substances which are hazardous to health	Yes ☐	No ☐		Irritating (Xi)	Yes ☐	No ☐
	Toxic (T)	Yes ☐	No ☐		Highly toxic (T+)	Yes ☐	No ☐
	Corrosive	Yes ☐	No ☐		Explosive	Yes ☐	No ☐
	Highly flammable (F)	Yes ☐	No ☐		Extremely flammable (F+)	Yes ☐	No ☐
	Supporting combustion	Yes ☐	No ☐		Hazardous to the environment	Yes ☐	No ☐
	Radioactive substances (please indicate nuclide type and remaining activity under 2)	Yes ☐	No ☐		Other biologically hazardous substances	Yes ☐	No ☐
	Heavy metals	Yes ☐	No ☐		Other	Yes ☐	No ☐

Please indicate the details for the hazards described above, especially precise designation of the substances. Please attach the safety data sheet (in accordance with 91/55/EEC) of the substances.

Material description:_____

Chemical Abstract Services - CAS-no.:_____

Which sort of decontamination (inside or outside the product) was carried out so that returned parts can be handled by people without danger? (please describe: e.g. autoclaving, neutralising, disinfecting etc.)

_____

_____

Is residual contamination possible?

_____

_____

It is hereby confirmed that all information is correct and was provided according to the best intentions.

Date: _____ Signature:

Company stamp:

With your signature you accept the following conditions:

- The goods travel at the risk of the sender up until the point of delivery.
- The transport regulations for transport by road, rail and post (SDR/ADR/RID) and the regulations for air freight (IATA) apply for the return of URACA GmbH&Co.KG products contaminated with hazardous substances.
- The sender is liable for material and personal damage which occurs as a result of non-observance of the legal regulations or due to untrue or omitted information in this clearance certificate.

Notices / comments:

_____

_____

_____

_____

Operating manual Test Pump EP601W100 & EP601D/200

Table of content

1 Operating safety – measures for the pump assembly

- Make sure that the **operating personnel** receive the **operating instructions**.
- There is a **risk of injury and property damage** given improper use or given **careless contact** with the pump. **Only start the pump or execute repairs after all** involved personnel have **read and understood the operating instructions.**
- **We are not liable for personal and property damages that arise due to careless use of the pump or in that the directions contained in the operating instructions are not followed.**
- Follow the safety and accident prevention rules applicable at the site of installation.
- **Do not exceed** the operating pressure that is specified on the rating plate.
- Prevent untrained personnel from obtaining access to the pump and its accessory parts.
- Cover rotating parts.
- Only convey the fluid for which the pump was sold. See the corresponding task specifications or technical data.
- A possible danger posed to operating personnel by the transport fluid is to be avoided via suitable accident prevention measures by the operator.
- The function of the safety devices is to be checked regularly.
  - Check the secure seating of the bell housing
  - Check the secure seating of the slit cover of the bell housing.
  - The splash guard of the motor switch “On / Of” may not exhibit any tear.
  - Test the function of the overcurrent valve (UL) by rotating the handle. Afterwards, rotate the UL handle until the desired test pressure is reached.
- **Cordon off the test piece so that no one has access during the pressure test.**
- **De-aerate the test piece before the build-up of the test pressure.**
- **Provide a safety covering for the test piece.**
- **Before repairs:**

  Stop pump. Stop water supply.

  Secure the motor so that it is not possible to start it during the repair.

  The fluid side (and, if present, the resonator) must be **without pressure**.

2 Copyright

We retain the copyright to these operating instructions; they are entrusted to the owner of the machine only for personal use. The operating instructions contain specifications of a technical nature and drawings that may not be duplicated either wholly or in part, disseminated or utilized without authorization for purposes of competition, or communicated to other parties.

URACA Pumpenfabrik works continuously to develop all types and models. Please understand that we reserve the right to change the product contents in form, equipment and technology at any time.

3 Technical Data

Our commission number:
(Please specify if ordering replacement parts or other enquiries!)

Technical Data:		**EP 601 W/100**	**EP 601 D/200**
Normal design:		BG004077	BG004092
Explosion-protected design:		not available	not available
Allowable operating overpressure (operating pressure) bar			5 – 100 5 – 200
Transport medium		water und hydraulic fluid	
Operating temperature	max. °C	40	40
Plunger stroke	mm	7.6	7.6
Rotational speed	min-1	1450	1450
Maximum allowable supply pressure	bar	5	5
Volume flow	l/min	5	5
Plunger count		3	3
Plunger diameter	mm	15	15
Sound pressure level L_{pA}	dB(A)	72 ±2	72 ±2

Technical data of the drive motor: (RAVEL)

Power of the motors	kW (PS)	1.5 (2)	3 (4)
Rotational speed of the motors	min-1	1400	1400
Voltage	Volt	230	400
Current type rent		Alternating current	Three-phase cur-
Frequency	Hz	50	50
Rated motor current	A	11	7,1
Elec. fuse	A	16	16
Protection class of the motor	IP	54	54
Total weight (empty)	kg	37	44

Motor for explosion-protected design: (not available)

Power	kW	_____
Rotational speed	min-1	_____
Voltage	Volt	_____
Frequency	Hz	_____
Elec. fuse	A	_____
Protection class:		_____

4 Short description of the high-pressure test pump assembly

Drawing: AA329427 / AA329469

The pump is directly coupled with the drive motor and is installed on a supporting frame with all required equipment such as pressure adjustment valve, discharge valve and manometer. The drive motor is provided with a plug. The on/off switch is integrated into the terminal box and provided with a splash guard.

The pump draws the transport fluid from the feed line reservoir. At the installation site the reservoir is connected to the water line via a supply hose with matching connection parts. An installed float valve blocks the water supply when the max. fill level in the reservoir is reached.

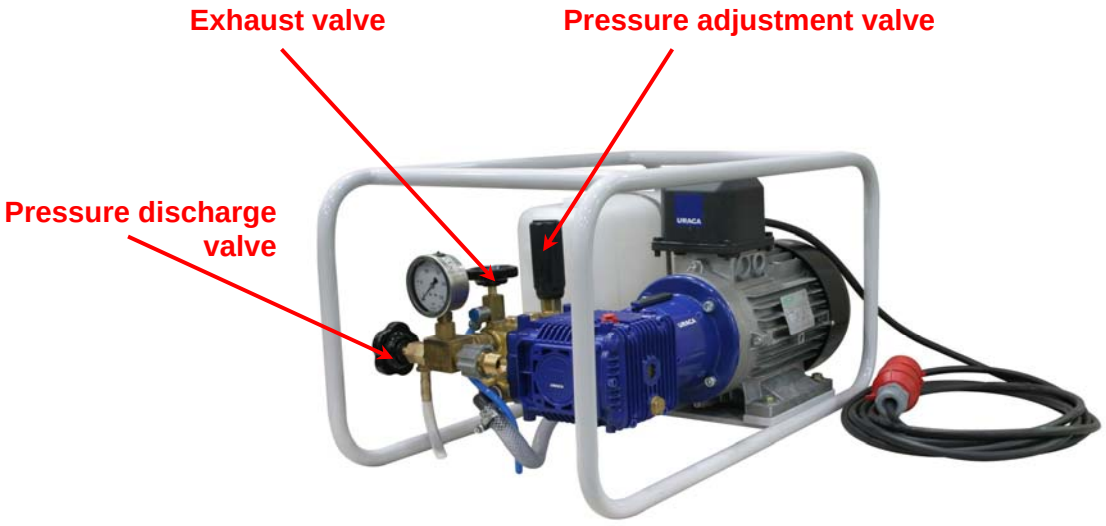
The respective required test pressure can be set at the **pressure adjustment valve** which is continuously adjustable between 5 – 100 bars or between 5 – 200 bars. When the test pressure is the reached, the adjustment valve (UL) opens and the fluid transported by the pump flows back into the suction chamber of the pump. Symbols on the handle indicate the rotation direction for increasing or decreasing the pressure.

When the set test pressure is reached and the testing assembly is operating in circulation, the testing assembly must be immediately deactivated.

Warning!

Transport fluid that is pumped in circulation operation heats up very quickly. The heat development can lead to damage to the machine and to burns.

The **pressure discharge valve** is closed during the testing procedure. After the end of the pressure test it is opened and the test pressure is thereby dissipated. The fluid exiting from the discharge valve flows into the open. If it should be necessary to capture the exiting fluid, replace the hose end present at the stop valve with a longer hose end and direct it to a suitable capture container.



Depicted on EP601D/200

5 First startup!

- Check the oil level with the dip stick. Refill oil as needed. Use approx. 0.4 kg "SAE 85 W 90" motor oil. Conduct the first oil change after 50 operating hours, subsequently conduct oil changes every 500 operating hours.
- Connect the supply reservoir to the existing water system, open the water tap and fill the reservoir.
- Open the pressure discharge valve. (Rotate the hand wheel to the LEFT)
- Open pressure adjustment valve. (Rotate the hand wheel all the way to the LEFT)
- Open the exhaust valve at the pump body. Leave it opens until the transport medium is free of bubbles, then close the exhaust valve. Given an environmentally harmful medium, use a catch basin.
- Connect the pressure hose to the pressure connection and to the test piece.
- Insert the plug into the socket and start the drive motor.
- * Check rotation direction. Stop the pump as needed and correct the rotation direction. See arrow on the housing.

The pump transports into the test piece and initially fills it. **De-aerate the test piece during the filling process.**

When air no longer exits, build up the test pressure as follows:

- Slowly rotate the handle of the pressure adjustment valve to the right. Observe the pump manometer. Do not turn the handle further as soon as the required test pressure is reached.
- Turn off the drive motor now.

When the test period is ended, open the pressure discharge valve so that the test pressure is dissipated.

Note:

* Only necessary for the 200 bar design with three-phase current motor.

If the test pressure should stand in the test body for a longer time period, additionally install a shut-off unit between the pressure hose and the test body.

If necessary, pre-fill large test pieces with the test fluid insofar as this is possible. **De-aerate test piece before the pressure build-up!**

The pump must stand level during the operation so that a sufficient lubrication of the mechanism is ensured.

6 Troubleshooting

Problem	Cause	Solution
The pump transports irregularly or not at all.	Too little water in the reservoir because insufficient water is running or the float valve is shut.	Check float valve. Increase the supply volume of the water line.
The pump builds up no pressure in spite of sufficient transport volume.	The pressure adjustment valve is defective.	Exchange or repair the valve.
	The pressure discharge valve is leaky due to contamination or wear.	Disassemble and clean the valve.
	The valve was not correctly closed at the beginning of the test procedure.	Close the valve.
	The pressure hose is not connected to the test subject or the test specimen itself is leaky.	Connect the pressure hose properly. Remedy the possible leaks present at the test specimen.
	Air pockets in the pump.	Repeat de-aeration.
	The plunger seal is worn or leaky.	See note under maintenance.

7 Maintenance

An oil change is required every 500 operating hours.

Before starting up after longer downtimes, check whether water condensation has formed in the mechanism space. If this is the case, the oil must be changed. The required oil quantity is approx. 0.4 kg. An “SAE 85 W 90“ motor oil is used.

Frost risk
Given risk of frost, empty the reservoir. For this, rotate the pump and hold the reservoir in an inclined position until water no longer exits from the opened discharge valve.

8 Repair

Exchange the pressure and suction valves
With a ring spanner, unscrew locking screw **2** with seal ring **1**. Remove the underlying pressure or suction valve **3** with the associated seal rings **4**. Before the installation of the new valves, the valve spaces are to be cleaned as thoroughly as possible. Install the new valves after this.

If further repairs are required apart from to the valves, for example to the mechanism or to the plunger seal, we recommend that the test assembly be sent to us for repair.

Given repair of the float valve, note:

The float is to be set so that it stands vertically after the tightening of the cover. Otherwise it does not function correctly.

15.01.08 MB

Safety Instructions

URACA water jet machines and water jet tools are operationally reliable and of state-of-the-art design. However if they are operated by untrained personnel or incorrectly or not for the purpose intended, this may result in danger. Under no circumstances should safety be accorded anything but the very highest priority when you put these water jet machines into service. Failure to observe this may result not only in machine malfunctions or damage to the machine and other property but also may expose the operator or other persons to the risk of death or serious injury.

1 Personnel Qualifications and Training

All persons involved in operating, maintaining, servicing or installing the machine must be in possession of the corresponding qualifications for the work. The user must clearly define areas of responsibility, duties and supervision of personnel. If an employee lacks the requisite knowledge or skills then he must be trained and instructed accordingly. If so required, this training may be carried out by the manufacturer or supplier of the machine on behalf of the user. The user must also ensure that his personnel have read and fully understood the contents of the operating manual.

Familiarity with the operating manual is a precondition for the prevention of mistakes and errors and for smooth operation.

In other words, the place for the operating manual is not the office: it should be accommodated in the high-pressure water jet machine where the operator can readily see it and consult it.

We recommend that the user or his representative from time to time check the work of the operating personnel to make sure that they are working not only with awareness of safety and potential hazards but also in compliance with the manual.

Responsible persons must ensure that all regulations regarding training, operating, maintenance and repairs are precisely complied with.

Dangers resulting from Failure to Comply with Safety Instructions
Failure to comply with safety instructions may result in not only persons but also the machine and the environment being endangered. Failure to comply with safety instructions may render any damage claims null and void.

Failure to comply with safety instructions may for example lead to the following hazards arising:

- Failure of important machine or system functions
- Failure of prescribed routine or corrective maintenance methods
- Endangerment of persons by electrical, mechanical or chemical influences or effects
- Endangerment of the environment by leakage of hazardous substances

2 Safety-Conscious Working

You must comply with the safety instructions provided in this operating manual, with existing national accident prevention regulations, and with all of the user's working, company and safety regulations.

You must ensure that you can step in at any time, either with equipment or with personnel, to protect persons working with the spraying equipment in the event of a hazardous situation occurring.

You must always inspect the water jet machine, the water jet tools and accessories for outward damage before starting work. This equipment must not be operated if it is not in perfect technical condition. The equipment must be used for the purpose intended and operated in a safety-conscious manner, with awareness of potential hazards and in accordance with the operating manual. If any faults occur which could have a detrimental effect on safety you should correct them or have them corrected immediately.

Before work begins:

- general access to the working area must be blocked
- the operator should have familiarised himself with all features and controls

Do not work with the high-pressure water jet machine or water jet tools when you are tired, do not feel well, or are under the influence of medicaments or if you have consumed alcohol.

Never work alone. The operator must ensure that no unauthorised person works with the high-pressure water jet machine or with its accessories.

All hoses, pipes and threaded connections must be in good condition and be fitted properly. They must also undergo regular inspections for leaks and for damage.

- Attend to any points where the hoses are rubbing or being abraded
- Do not route hoses over sharp edges
- Replace hoses if the outer covering of the hose is worn or damaged.

Danger

Even if you have what appear to be minor leaks you must still switch the machine to zero pressure and shut it down. (In contrast to the garden hose, these threaded connections should only be tightened up when there is no pressure in the hoses.)

It is mandatory that you wear protective clothing including :

- Protective suit
- Safety boots
- Safety helmet with visor
- Safety goggles
- Protective hearing devices

2.1 If spray-guns are being used

Only nozzles specially approved for the manually operated spray-gun are permitted to be used with the gun. If the nozzle apertures are too large the reactive forces will reach a level where they can no longer be safely managed. Nozzles should only be changed when the machine is at zero pressure and has been switched off.

Also important in working safely with the spray-gun :

- the operator must take up a safe stance
- he must hold the spray-gun with both hands
- he may need to use a spray-gun with a butt strap
- he must not point the spray-gun at any one even when it is switched off
- he must switch the unit to zero pressure when work is finished or when taking longer breaks
- before putting the spray-gun away he should secure the trigger

The size and positioning of the nozzles in the spraying equipment and the operating pressure should be so adapted to each other that the operator can safely manage the resulting reactive force depending on where he is standing and his weight.

In this connection, please refer to the nozzles table

Reactive force less than 150 N: Suitable for all manually controlled spraying equipment	**Reactive force 150 - 250 N:** Suitable for spraying equipment with butt strap and held with two hands.	**Reactive force above 250 N:** Only suitable for fixed (clamped) spraying equipment.

The reactive forces to be handled under hand operation must not exceed 250 N (25kp) along the longitudinal axis of the hand spray-gun.

If angled spraying equipment is used this may change the reactive forces encountered.

2.2 Safety Instructions for the User and Operator

- If hot or cold machine parts are potentially dangerous their owner should ensure that they cannot be touched.
- Safety guards for moving parts (such as couplings) must not be removed when the machine in question is running.
- Leaks (for example, from the shaft seal) of hazardous material being conveyed (for example, explosive, toxic or hot substances) must be drained off or removed in such a way that persons or the environment are not endangered. You must comply with the applicable statutory regulations.
- You must ensure that electrical energy does not pose any risk (for detailed information in this regard please refer to VDE regulations, to local power supply company regulations and so on)
- Safety and protection features where fitted (for example, coupling guards) must never be disabled or removed.
- Forward-spraying nozzles should only be used with rigid lances.
- Backward-spraying nozzles can be used with hoses and flexible lances.
- Lances or hoses with screwed-on nozzles (for example, for cleaning pipes or heat exchangers) must be provided with a clear marking which permits the ready identification of the nozzle outlet.
- The distance between the nozzle and the marking should not be less than 500 mm.
- Lances must be fitted with a grip positioned vertically with respect to the longitudinal axis of the lance.
- Lances or hoses with screwed-on nozzles should not be used with high-pressure water unless they have been inserted at least 500 m into the pipe which is to be cleaned.
- Before you begin work you must make sure you are familiar with all equipment and operator controls.
- Do not leave the high-pressure water jet machine running unattended.
- While running the machine keep an eye on the control cabinet.
- If the gauges do not show the values they should, switch the high-pressure water jet machine off immediately and correct the problem.
- Restart the high-pressure water jet machine only when all faults and malfunctions have been corrected.
- The user or shift foreman should be informed immediately of defects and repair work which may be necessary. You should also inform anyone who will be using the high-pressure water jet machine once you have finished with it.
- Correct potential dangers immediately!
- If necessary, affix a warning to the control cabinet which prohibits the machine being used or started.

3 Safety Instructions for Maintenance, Servicing and Installation Work

The user must ensure that all maintenance, servicing and installation work is performed by authorised and qualified specialist personnel who have a sufficient degree of familiarity with the operating manual.

Work may only be carried out on the machine when it is at a standstill. It is essential that you comply with the procedure for shutting down the machine which is described in the operating manual.

Immediately upon completion of your work, all safety and protective features must be fitted back and enabled.

Before restarting the machine, make sure you have complied with the points listed in the section dealing with initial start-up.

Before starting on your maintenance or repair work, set up a notice on the control cabinet and on the operator controls which says "High-pressure water jet machine being repaired. Do not switch on!" or the like.

Fitters and maintenance personnel are obliged, when handling, maintaining or repairing the machine, to use working methods which are absolutely safe and which are in compliance with all applicable local safety regulations.

No unauthorised work should be carried out on or modifications be made to work equipment or electrical control units.

If the drive needs to be switched on while you are carrying out your maintenance work, a second person must be present. This person will be responsible for switching the machine on or off and for providing assistance when necessary. The same shall apply to test runs and to testing the system.

For some work special tools will be required. Using them should make work safer and faster and also help prevent parts from being damaged.

Before removing, repairing or fitting any parts, relieve the pressure on the entire system!

High-pressure liquids (water, hydraulic oil and so on) exiting at high pressure can rip through your skin and cause serious injuries and infections.

Never use your bare hands to look for leaks in high-pressure water hoses, pipes or hydraulic lines. Under certain circumstance you will not be able to see the high-pressure jet coming out of a small hole and serious injuries may be the result. To check for leaks, use pieces of paper or wood which should be placed in position.

Never use high-pressure water to spray-clean the high-pressure water jet machine itself.

Always wear safety goggles and protective clothing when working with compressed air.

Do not use flammable cleaning agents.

Fumes from cleaning agents can be toxic. Take precautions.

Once repair or maintenance work is finished make sure that all safety devices and protective devices have been fitted back properly and function properly.

4 Unauthorised Modifications and Manufacture of Spare Parts

Modifications to or conversion of the machine is not permissible unless you have cleared this with the manufacturer. The use of original spare parts and accessories authorised by the manufacturer is conducive to safety. Use of other parts may cancel any liability on the manufacturer's part for any resulting damage.

Only use URACA original spare parts and accessories. Parts manufactured by other manufacturers will often not be of the requisite quality and fail to meet requirements. This may adversely affect safety and the functioning of the machine.

Damage, conversion work or other modifications to the high-pressure water jet machine and connected accessories may be detrimental to safety.

Attention
URACA original spare parts and URACA accessories have been designed especially for URACA high-pressure water jet machines and have been tried and tested in comprehensive series of tests.

We should like to point out expressly that spare parts and accessories not supplied by us have not been tested or approved by us either.

Danger
For this reason, fitting and using third-party products can under certain circumstances have a negative effect on the designed characteristics of the high-pressure water jet machine and thereby impair safety for people, for the machine and for other property.

The manufacturer cannot assume any liability for damage which results from the use of third-party parts or accessories nor for damage resulting from unauthorised modifications or conversions of the high-pressure water jet machine or its connected accessories.

5 Safety instructions regarding the proper treatment of high pressure hoses

You should read and comply with the installation and safety instructions if the proper functioning of the hoses is to be ensured and their service life is not to be reduced by additional stresses and strains.

Attention!

Hose lines should be selected so that at the unit's operating overpressure they can withstand the mechanical, chemical or thermal stresses placed on them.

Hoses must be installed in such a way that their natural position and movement is not hindered or obstructed.

Hose lengths must be correspond to installation conditions. Possible shortening or stretching of the hose under operating pressure should be taken into consideration here too.

Never use hoses which are damaged. Damage includes worn-off outer coating, exposed metal inserts, pinches, bent or rusty fittings and so on.

Use only hose couplings and pressure connections which have been approved for use with water under high pressure within the permitted pressure range and which are functionally compatible with each other.

Hoses when in operation must not be subjected to additional forces such as tension, torsion and compression, even when these are external influences.

The hose must not be bent tighter than its minimum permitted bending radius.

Wherever possible hoses must be protected against being damaged by mechanical, thermal and chemical effects coming from outside.

You must not use hoses which are marked with a permitted operating overpressure which is lower than that specified on the machine.

You should avoid painting hoses.

Hoses must be laid or secured such that any hazard arising from failure of the hose will be prevented.

Use protective covers or screening in order to prevent any potential danger due to water escaping under high pressure.

Use hose stockings in order to prevent any potential danger due to a splitting hose. Hoses are wearing parts with a limited service life. For this reason they should be replaced at regular intervals which will determined by operating conditions. They should be replaced even when no safety defects are detected.

When work is finished, release the pressure in the hoses, disconnect, clean, drain, reel in and correctly store the hoses.

Hoses should be stored without kinks or tension in a cool, dry place with little dust.

Hoses should only be fitted by personnel who have had special training in this.

Freshly fitted hoses must be subjected to a hydrostatic pressure test at the approved testing pressure.

Testing medium: **any suitable liquid, such as water**

Test time: **two minutes**

Note: As the high pressure hose material is subject to chemical ageing it is essential to replace all hoses every two years. please order only such hoses on which the permitted operating pressure is stamped.

6 Impermissible Operation

The operational safety of the supplied machine can only be assured when it is used for the purpose intended and operated as specified in this operating manual. The limit values specified in the data sheet must never be exceeded.

7 Hazards

7.1 General

The jet of liquid leaving the nozzle of the high-pressure water jet machine represents a serious hazard.

7.2 Mechanical Hazards

The various parts of a high-pressure water jet machine constitute in their entirety a system under internal overpressure. Mechanical hazards may arise, for example, from water escaping in an uncontrolled way under pressure (this does not apply to the nozzle) due to excessive pressure or to defects in parts under pressure. One particular mechanical hazard is constituted by the reactive forces encountered with manual spray-guns and caused by the force of the jet of water.

7.3 Electrical Hazards

Electrical hazards may in particular arise by the water jet coming into contact with live components.

7.4 Thermal Hazards with Water

There is a potential danger of scalding. In high-pressure water jet machines with heaters and with machines which use heated water, touching hot parts can cause burns. At operating temperatures above 50 C the temperature of the heated water means the potential hazard of scalding.

7.5 Hazards due to Noise

The drive motor, the pump and the jet of liquid at the nozzle can create noise which can endanger health. The same applies to the noise of the jet stream hitting the object being treated.

7.6 Hazards due to Instability

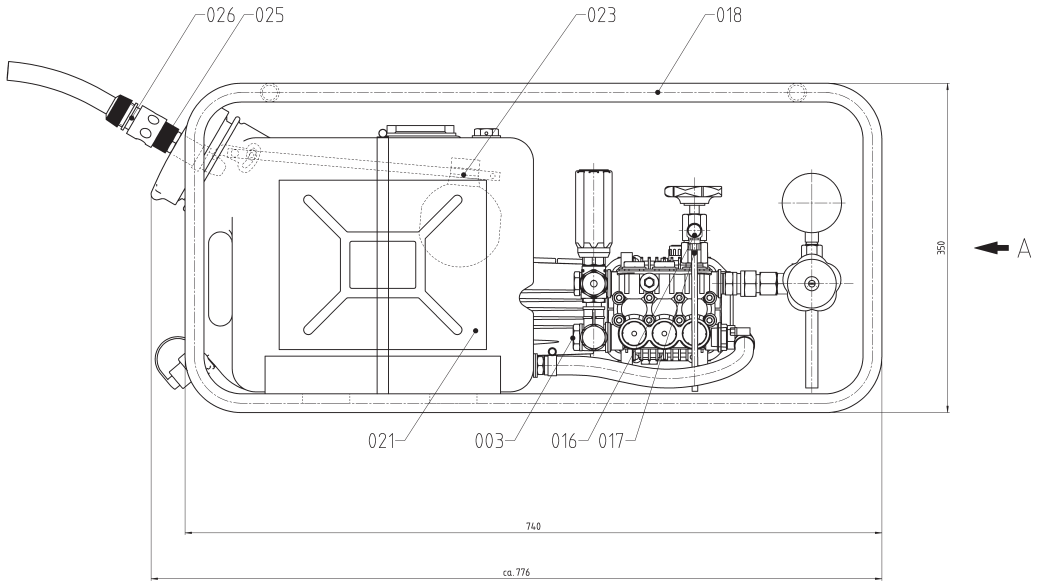
The stability of mechanically guided spraying equipment may be put at risk by the reactive force of the jet of water. In the case of machines on wheels, there is the risk of the machine rolling away.

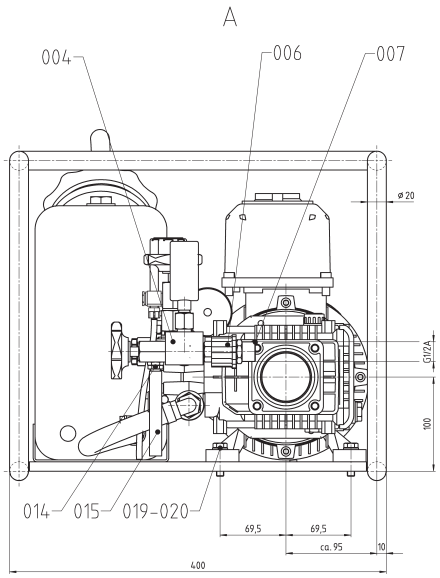
7.7 Hazards arising during Transportation

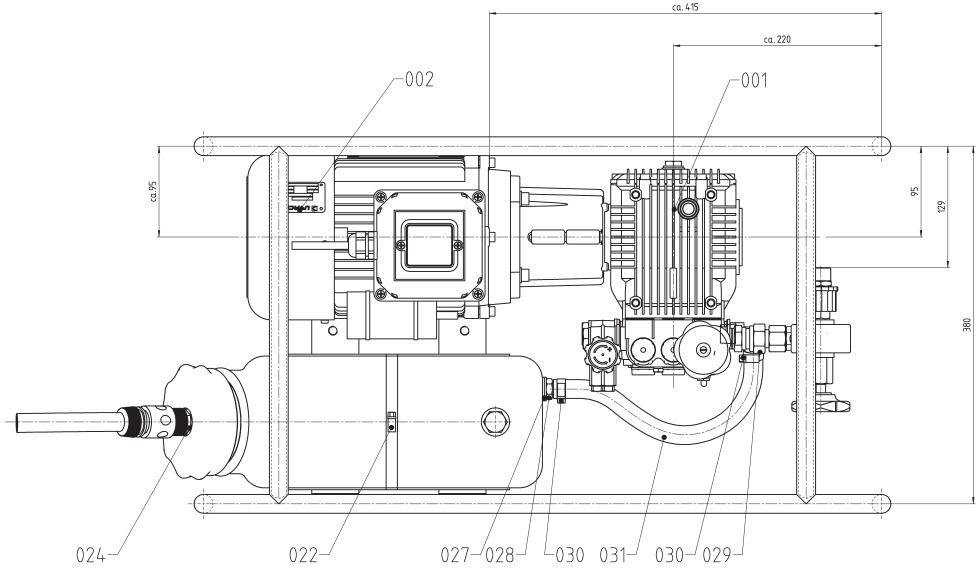
The machine may be put at risk during transportation by being tipped over or dropping.

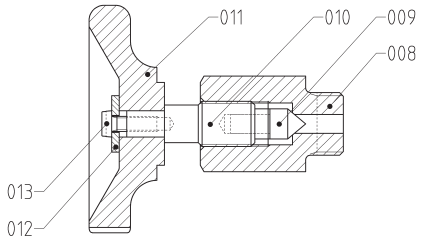
7.8 Hazards arising from Incorrect Conversions

Hazards may arise when machines are converted due to components being connected which are not designed for the approved operating pressure.









B	div. Änderungen		----	10.4.2014	SA
A	Druckventil ausgetauscht			30.10.13	DT
Ind	Änderung	ÄM	Datum	Kz	

Werkstoff

Gewicht 40,00 kg | PPS BG004077

Ursprung | CAD BG004077

Kanten ISO 13715 | Bearbeitung DIN EN ISO 1302

Allgemeintoleranz ISO 2768 mK

Projektionsmethode	bis	6	30	120	400	1000	2000	4000
		±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	

URACA

Elektrische Prüfpumpe
EP601 100bar

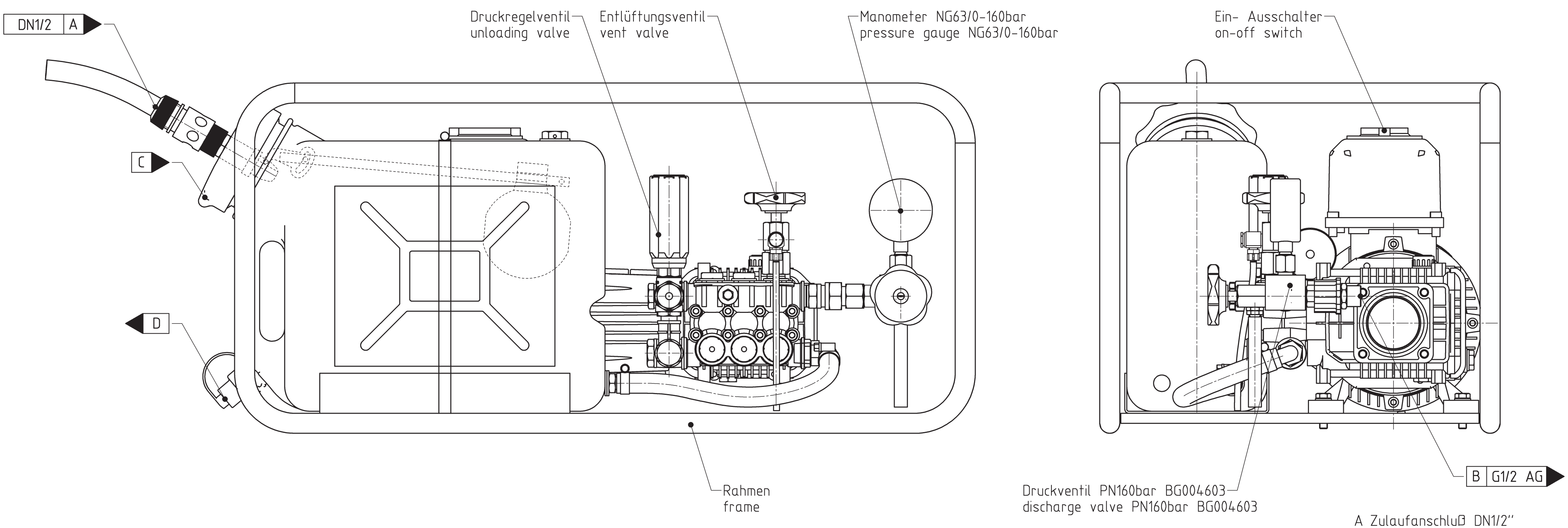
AA329427 | B

Format | Zeichnungsnummer | Rev

gez.	09.04.13	Schoenleber, A.
gepr.	09.04.13	Ott, T.
Norm	10.06.14	Goetz, I

Maßstab 1:2

10.06.2014 14.00.39 Freigabe Auftrag

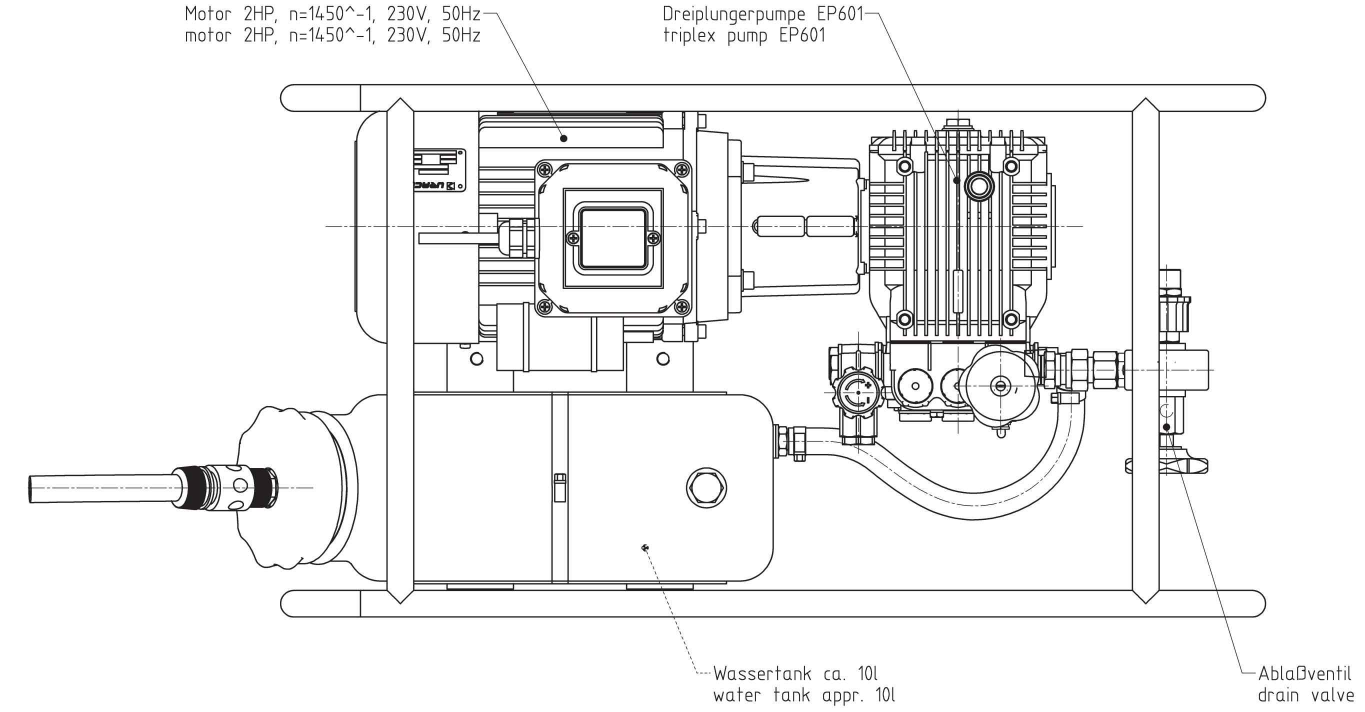


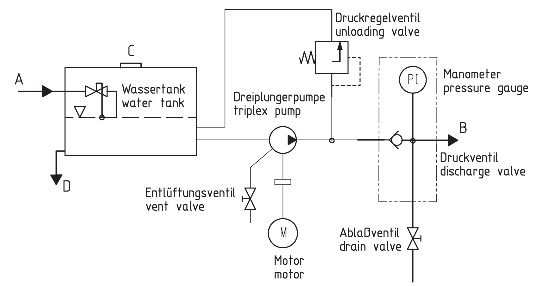
A Zulaufanschluß DN1/2"
suction connection DN1/2"

B Druckanschluß G1/2 AG
discharge connection G1/2 male

C Wartungs- und Montageöffnung mit Deckel
maintenance- and mounting opening with cover

D Entleerung G3/4 IG
drain G3/4 female





Ind	Änderung	ÄM	Datum	Kz
B	div. Änderungen	----	10.4.2014	SA
A	Druckventil ausgetauscht		30.10.13	OT

URACA

Elektrische Prüfpumpe
EP601 100bar

Werkstoff	
Gewicht 40,00 kg	PPS BG004077
Ursprung	CAD BG004077
Kanten ISO 13715	Bearbeitung DIN EN ISO 1302
Projektions-methode	Allgemeintoleranz ISO 2768 mK

> bis	0,5 6	6 30	30 120	120 400	400 1000	1000 2000	2000 4000
	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2	± 2,0

Format	Zeichnungsnummer		Rev
	B329441		B
gez.	09.04.13	Schoenleber, A.	Maßstab 1:2
gepr.	09.04.13	Ott, T.	
Norm	10.06.14	Goetz, I	

Ausgabedatum 10.06.2014 14:01:36 **Freigabe Auftrag** Erstellt mit Unigraphics NX75, Format A1

PNo: 1 x BG004077 Elektrische Prüfpumpe EP601 W/100 Date new: 09.04.2013
DNo: AA329427;B329441 5l/min / 5-100bar / 2Hp/230V/50Hz Date chg: 29.01.2014
electric testing pump Code: 1

ZPos DPos	TeileNr/Benennung PartNo/Designation	Zeichnungsnummer Drawing No.	Gewicht(kg) Weight (kg)	Verwendungsart Application	Menge Quant	Preis/St Price/pc
001	2000975 Dreiplungerpumpe EP601 Typ HXMT05.10 komplett mit Motor 2Hp, 230V/50Hz/ Triplex-Plunger-Pump EP601			d1,ex	1	
002	L107749 Schild 52x37x0,5 URACA (bar) für Pumpe (deutsch) Label		0,007	ex	1	
003	2002147 Verschlußschraube G1/2A/SW24x16 plug screw G1/2A		0,041	ex	1	
004	BG004603 Druckventil PN100/G3/8 mit Manometer NG63/0-160bar pressure valve	D331933	0,950	ex,bgf	1	
006	L109235 Verschraubung M21x1,5/G1/4A SP30 Union		0,104	ex	1	
007	L109236 Doppelnippel M21x1,5/G1/2A/SW22x34 Nipple		0,065	ex	1	
008	L37108 Ventilgehäuse SW22x38xG3/8A Valve casing		0,091	ex	1	
008	L37108 Ventilgehäuse SW22x38xG3/8A Valve casing		0,091	ex	1	
009	L37109 Ventilkegel d8/5x20 Valve cone		0,004	ex	1	
009	L37109 Ventilkegel d8/5x20 Valve cone		0,004	ex	1	
010	L37110 Ventilspindel M12x1,5x38 Valve spindle		0,022	ex	1	
010	L37110 Ventilspindel M12x1,5x38 Valve spindle		0,022	ex	1	
011	L37111 Handrad C63x7 Handwheel		0,040	ex	1	
011	L37111 Handrad C63x7 Handwheel		0,040	ex	1	
012	E161690 Scheibe d17/25x2 Washer		0,004	ex	1	

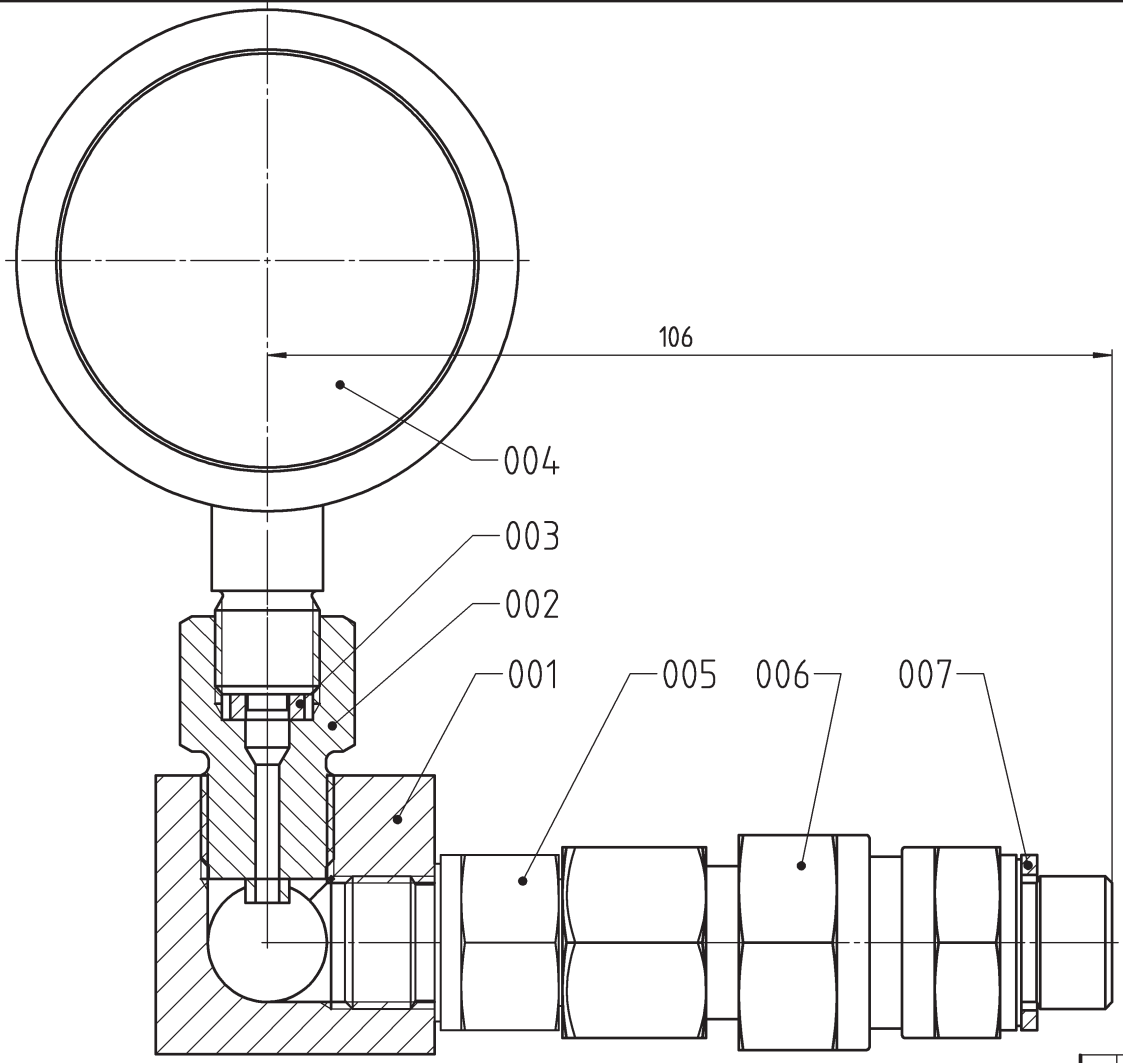
PNo: 1 x BG004077 Elektrische Prüfpumpe EP601 W/100 Date new: 09.04.2013
DNo: AA329427;B329441 5l/min / 5-100bar / 2Hp/230V/50Hz Date chg: 29.01.2014
electric testing pump Code: 1

ZPos DPos	TeileNr/Benennung PartNo/Designation	Zeichnungsnummer Drawing No.	Gewicht(kg) Weight (kg)	Verwendungsart Application	Menge Quant	Preis/St Price/pc
012	E161690 Scheibe d17/25x2 Washer		0,004	ex	1	
013	L100079 Zylinderschraube M4x10 vernickelt Cap screw		0,001	ex	1	
013	L100079 Zylinderschraube M4x10 vernickelt Cap screw		0,001	ex	1	
014	L108834 Schlauchtülle (Einschraub-) G1/8A Tülle für 9mm LW mit aufgeschraubter Hose sleeve		0,021	ex	1	
015	L32531 Schlauch d13/10x...mm, glasklar ohne Gewebe Hose			ex	150	
016	L100236 L-Schnellverschraubung G1/8A/DN5,3 Male stud hose coupling		0,023	ex	1	
017	L100801 Schlauch d6/4x...mm, blau Hose			ex	300	
018	Z019511 Rahmen 740x400x350 Pulverbeschichtet: RAL7047 frame		14,330	ex	1	
019	L100557 Scheibe A8,4 Disc		0,002	ex	4	
020	L108404 Sechskantschraube M8x30 Hex.-screw		0,015	ex	4	
021	L109241-K1 Weithalskanister 10l Inhalt, mit Verschlußdeckel der Füllöffnung, Weithalskanister 10l Inhalt, mit Verschlußdeckel der Füllöffnung,			ex	1	
022	L109242 Schlauchschelle 240-260/12 Clamp		0,081	ex	1	
023	L109240 Schwimmerventil mit Kugel Float valve compl.		0,223	ex	1	
024	L109232 Reduziernippel G1/2A/G3/8/SW24x18,5 Reducing nipple		0,026	ex	1	
025	L109243 Hahnstück DN1/2"/G1/2 Nipple		0,008	ex	1	

PNo: 1 x BG004077 Elektrische Prüfpumpe EP601 W/100 Date new: 09.04.2013
DNo: AA329427;B329441 5l/min / 5-100bar / 2Hp/230V/50Hz Date chg: 29.01.2014
electric testing pump Code: 1

ZPos DPos	TeileNr/Benennung PartNo/Designation	Zeichnungsnummer Drawing No.	Gewicht(kg) Weight (kg)	Verwendungsart Application	Menge Quant	Preis/St Price/pc
026	L109244 Schlauchverschraubung DN1/2" selbstschließend Hose union		0,024	ex	1	
027	L100572 Scheibe d4,5/15x2 Washer		0,002	ex	2	
028	L109238 Schlauchtülle G3/8A/SW19x47/DN11 Hose sleeve		0,031	ex	1	
029	L109237 Winkel-Schlauchtülle R1/2 für Schlauch DN12 Male stud elbow coupling		0,012	ex	1	
030	L109251 Schlauchschelle 16-25/9 Clamp		0,014	ex	2	
031	L109252 Schlauch d20/13x...mm, glasklar mit Gewebe Hose			ex	400	
x	L102215 Dichtring d13/18x2 Gasket		0,002	ex,ed,et	1	
x	2001802 Werkzeug für Druckeinstellung Gymatik Tool for pressure adjustment Gymatik		0,060	er	1	

*** Verwendungsarten/Applications: (all prices in EUR)
ex =Ersatzteil/spare part ed=Dichtteil/sealing part
et =Trennteil/separate part b =Beistellteil/part provided
bgf=Baugruppe/assembly group er=Reserveteil/repairable spare
ev =Verschleißteil/wearing part ea=Baugruppe auflösen/dissolve assembly group



Ind	Änderung	ÄM	Datum	Kz

Werkstoff 2.0380.08

Gewicht 0,9500 kg

PPS BG004603

Ursprung D315168

CAD BG004603

Kanten ISO 13715

Projektions-methode

Bearbeitung DIN EN ISO 1302

Allgemeintoleranz ISO 2768 mK

> bis	0,5 6	6 30	30 120	120 400	400 1000	1000 2000	2000 4000
	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2	± 2,0

URACA

Druckventil PN100

D331933 –

Format	Zeichnungsnummer		Rev
gez.	30.10.13	T. Ott	Maßstab
gepr.	30.10.13	T. Ott	%
Norm	31.10.13	Heidenreich, D.	

Ausgabedatum 06.11.2013 07 39 26

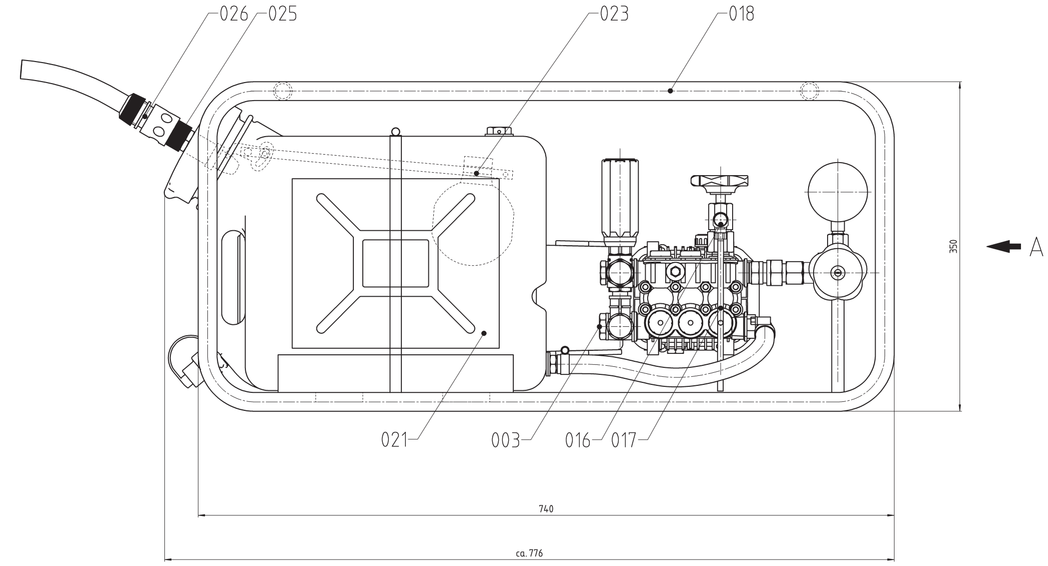
Freigabe Auftrag

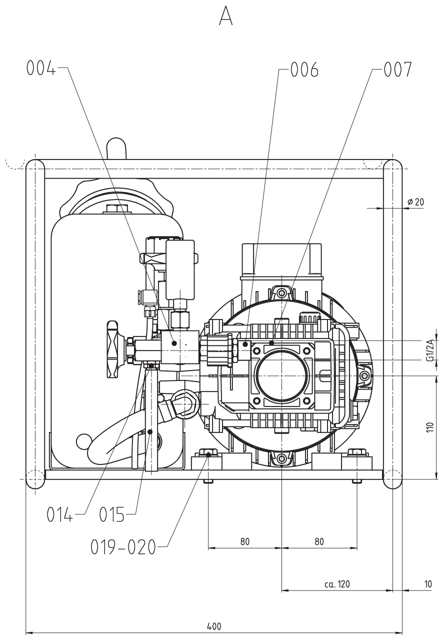
Erstellt mit Ungraphics NX75, Format A3

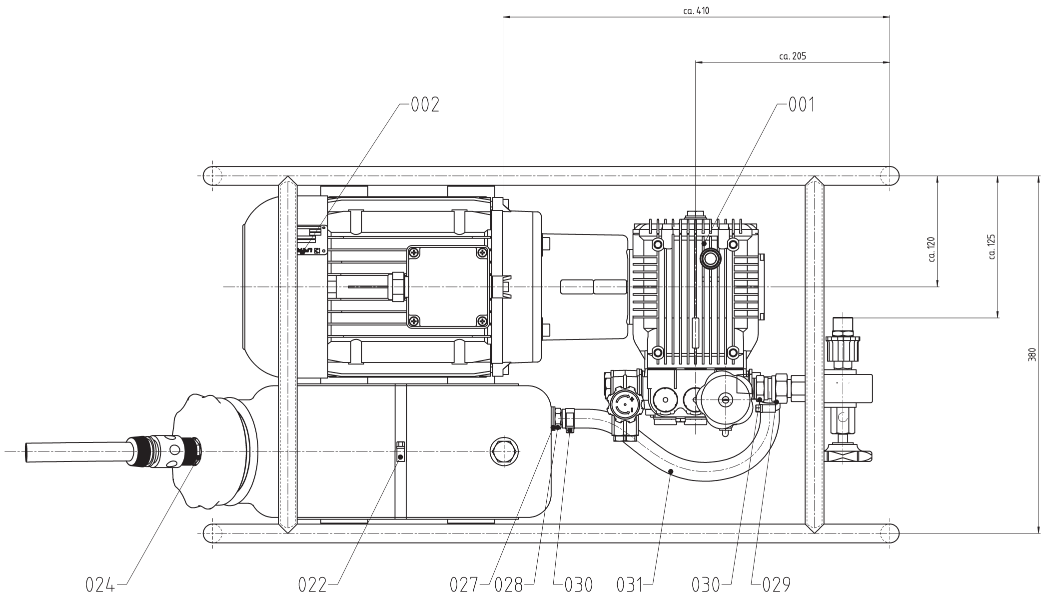
PNo: 1 x BG004603 Druckventil PN100/G3/8 Date new: 30.10.2013
DNo: D331933 mit Manometer NG63/0-160bar Date chg: 28.03.2014
pressure valve Code: 5

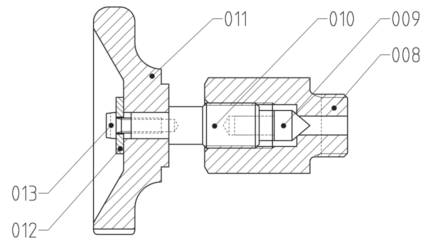
ZPos DPos	TeileNr/Benennung PartNo/Designation	Zeichnungsnummer Drawing No.	Gewicht(kg) Weight (kg)	Verwendungsart Application	Menge Quant	Preis/St Price/pc
001	L37130 Verteilstück G1/4-G3/8-G3/8-G3/8 Manifold		0,318	ex	1	
002	0216580 Anschlußnippel G1/4/G3/8B/SW19x33 PN max.600 bar Nipple		0,053	ex	1	
003	L109233 Dichtring d5,4/9,3x3,2 Gasket		0,001	ex,et,ed,	1	
004	L109234 Manometer NG63/G1/4B/0-160bar mit Rohrfeder, glyzeringefüllt, mit Pressure gauge glycerine filled		0,149	ex	1	
005	L113181 Kegel-Einschraubverschraubung NG12/PN630 G3/8A/M20x1,5 Cone union			ex	1	
006	L112647 Rückschlagventil NG12/PN400/G3/8A Check valve		0,380	ex	1	
007	F122658 Dichtring d17/22x2 Gasket		0,003	ex,et,ed,	1	

*** Verwendungsarten/Applications: (all prices in EUR)
ex =Ersatzteil/spare part ed=Dichtteil/sealing part
et =Trennteil/separate part b =Beistellteil/part provided
bgf=Baugruppe/assembly group er=Reserveteil/repairable spare
ev =Verschleißteil/wearing part ea=Baugruppe auflösen/dissolve assembly group









Ind	Änderung	ÄM	Datum	Kz
B	div. Änderungen	----	10.4.2014	SA
A	Druckventil ausgetauscht		30.10.13	OT

URACA

Elektrische Prüfpumpe
EP601 200bar

Werkstoff

Gewicht 40,00 kg — PPS BG004092

Ursprung — CAD BG004092

Kanten ISO 13715

Bearbeitung DIN EN ISO 1302

Allgemeintoleranz ISO 2768 mK

Projektionsmethode

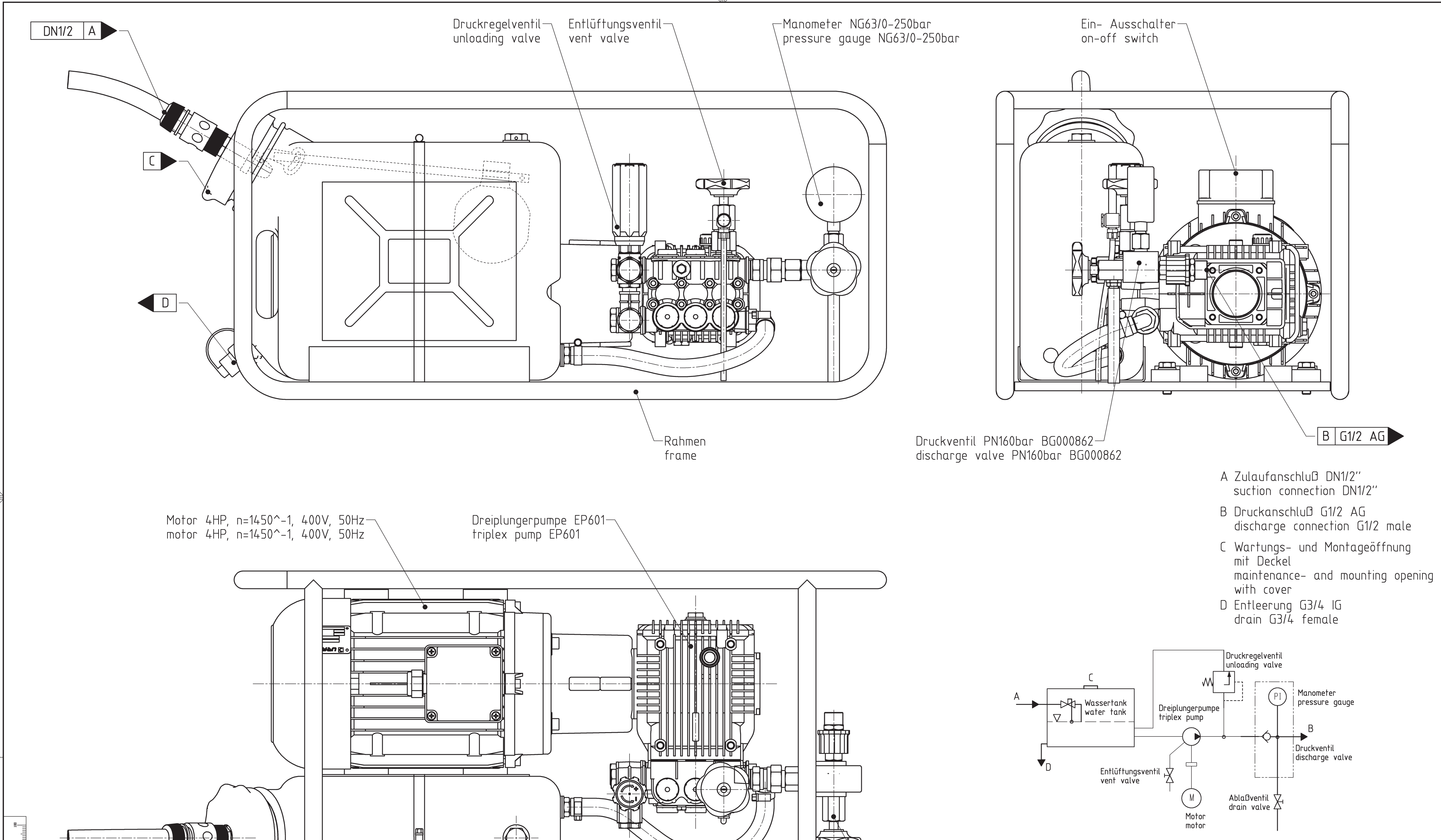
> bis	0,5 6	6 30	30 120	120 400	400 1000	1000 2000	2000 4000
	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2	± 2,0

Format — Zeichnungsnummer: AA329469 — Rev: B

gez.	15.04.13	Schoenleber, A.	Maßstab 1:2
gepr.	15.04.13	Ott, T.	
Norm	10.06.14	Goetz, I	

Ausgabedatum 10.06.2014 13:58:40 **Freigabe Auftrag**

Erstellt mit Unigraphics NX7.5, Format A0



Ind	Änderung	ÄM	Datum	Kz
B	div. Änderungen	----	10.4.2014	SA
A	Druckventil ausgetauscht		30.10.13	OT

URACA

Elektrische Prüfpumpe
EP601 200bar

Werkstoff			
Gewicht 40,00 kg	PPS BG004092	Zeichnungsnummer: B329468	Rev: B
Ursprung	CAD BG004092	Format	
Kanten ISO 13715	Bearbeitung DIN EN ISO 1302	gez. 15.04.13 Schoenleber, A.	Maßstab 2:1
	Allgemeintoleranz ISO 2768 mK	gepr. 15.04.13 Ott, T.	
Projektions-methode		Norm 10.06.14 Goetz, I	

> bis	0,5 6	6 30	30 120	120 400	400 1000	1000 2000	2000 4000
	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2	± 2,0

Ausgabedatum 10.06.2014 13:59:34 **Freigabe Auftrag** Erstellt mit Unigraphics NX75, Format A1

PNo: 1 x BG004092 Elektrische Prüfpumpe EP601 D/200 Date new: 15.04.2013
DNo: AA329469; B329468 5l/min / 5-200bar / 4Hp/400V/50Hz Date chg: 12.03.2014
electric testing pump Code: 1

ZPos DPos	TeileNr/Benennung PartNo/Designation	Zeichnungsnummer Drawing No.	Gewicht(kg) Weight (kg)	Verwendungsart Application	Menge Quant	Preis/St Price/pc
001	1464296 Dreiplungerpumpe EP601 Typ HSXM05.20 komplett mit Motor 4Hp, 400V/50Hz/ Triplex-Plunger-Pump EP601			d1,ex	1	
002	L107749 Schild 52x37x0,5 URACA (bar) für Pumpe (deutsch) Label		0,007	ex	1	
003	2002147 Verschlußschraube G1/2A/SW24x16 plug screw G1/2A		0,041	ex	1	
004	BG000862 Druckventil PN200/G3/8 mit Manometer NG63/0-250bar Pressure valve with pressure gauge and check valve	D315168	0,950	ex,bgf	1	
006	L109235 Verschraubung M21x1,5/G1/4A SP30 Union		0,104	ex	1	
007	L109236 Doppelnippel M21x1,5/G1/2A/SW22x34 Nipple		0,065	ex	1	
008	L37108 Ventilgehäuse SW22x38xG3/8A Valve casing		0,091	ex	1	
008	L37108 Ventilgehäuse SW22x38xG3/8A Valve casing		0,091	ex	1	
009	L37109 Ventilkegel d8/5x20 Valve cone		0,004	ex	1	
009	L37109 Ventilkegel d8/5x20 Valve cone		0,004	ex	1	
010	L37110 Ventilspindel M12x1,5x38 Valve spindle		0,022	ex	1	
010	L37110 Ventilspindel M12x1,5x38 Valve spindle		0,022	ex	1	
011	L37111 Handrad C63x7 Handwheel		0,040	ex	1	
011	L37111 Handrad C63x7 Handwheel		0,040	ex	1	
012	E161690 Scheibe d17/25x2 Washer		0,004	ex	1	

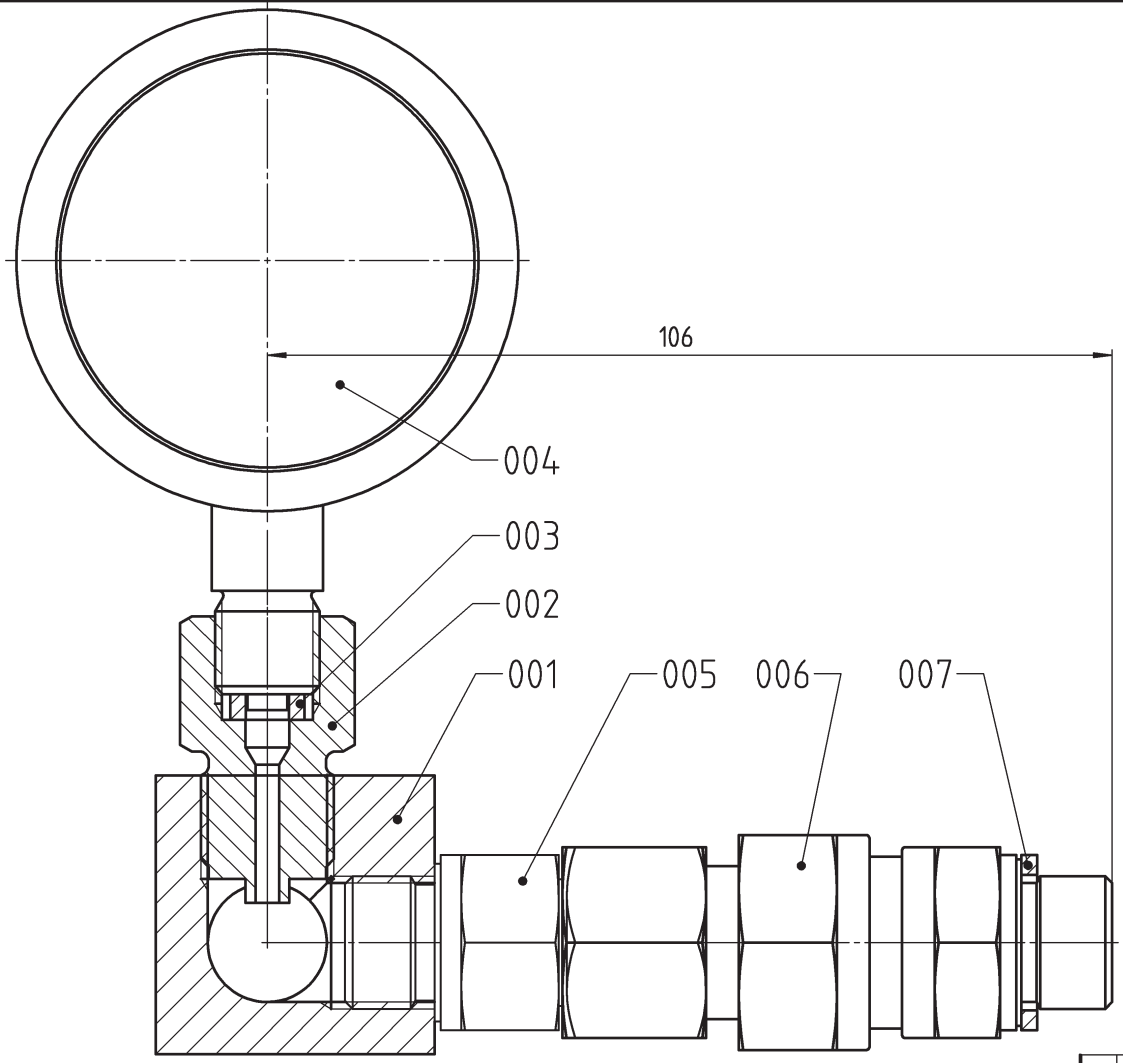
PNo: 1 x BG004092 Elektrische Prüfpumpe EP601 D/200 Date new: 15.04.2013
DNo: AA329469; B329468 5l/min / 5-200bar / 4Hp/400V/50Hz Date chg: 12.03.2014
electric testing pump Code: 1

ZPos DPos	TeileNr/Benennung PartNo/Designation	Zeichnungsnummer Drawing No.	Gewicht(kg) Weight (kg)	Verwendungsart Application	Menge Quant	Preis/St Price/pc
012	E161690 Scheibe d17/25x2 Washer		0,004	ex	1	
013	L100079 Zylinderschraube M4x10 vernickelt Cap screw		0,001	ex	1	
013	L100079 Zylinderschraube M4x10 vernickelt Cap screw		0,001	ex	1	
014	L108834 Schlauchtülle (Einschraub-) G1/8A Tülle für 9mm LW mit aufgeschraubter Hose sleeve		0,021	ex	1	
015	L32531 Schlauch d13/10x...mm, glasklar ohne Gewebe Hose			ex	150	
016	L100236 L-Schnellverschraubung G1/8A/DN5,3 Male stud hose coupling		0,023	ex	1	
017	L100801 Schlauch d6/4x...mm, blau Hose			ex	300	
018	Z019511 Rahmen 740x400x350 Pulverbeschichtet: RAL7047 frame		14,330	ex	1	
019	L100558 Scheibe A10,5 Washer		0,003	ex	4	
020	L108182 Sechskantschraube M10x30 Hexagon screw		0,025	ex	4	
021	L109241-K1 Weithalskanister 10l Inhalt, mit Verschlußdeckel der Füllöffnung, Weithalskanister 10l Inhalt, mit Verschlußdeckel der Füllöffnung,			ex	1	
022	L109242 Schlauchschelle 240-260/12 Clamp		0,081	ex	1	
023	L109240 Schwimmerventil mit Kugel Float valve compl.		0,223	ex	1	
024	L109232 Reduziernippel G1/2A/G3/8/SW24x18,5 Reducing nipple		0,026	ex	1	
025	L109243 Hahnstück DN1/2"/G1/2 Nipple		0,008	ex	1	

PNo: 1 x BG004092 Elektrische Prüfpumpe EP601 D/200 Date new: 15.04.2013
DNo: AA329469; B329468 5l/min / 5-200bar / 4Hp/400V/50Hz Date chg: 12.03.2014
electric testing pump Code: 1

ZPos DPos	TeileNr/Benennung PartNo/Designation	Zeichnungsnummer Drawing No.	Gewicht(kg) Weight (kg)	Verwendungsart Application	Menge Quant	Preis/St Price/pc
026	L109244 Schlauchverschraubung DN1/2" selbstschließend Hose union		0,024	ex	1	
027	L100572 Scheibe d4,5/15x2 Washer		0,002	ex	2	
028	L109238 Schlauchtülle G3/8A/SW19x47/DN11 Hose sleeve		0,031	ex	1	
029	L109237 Winkel-Schlauchtülle R1/2 für Schlauch DN12 Male stud elbow coupling		0,012	ex	1	
030	L109251 Schlauchschelle 16-25/9 Clamp		0,014	ex	2	
031	L109252 Schlauch d20/13x...mm, glasklar mit Gewebe Hose			ex	400	
x	L102215 Dichtring d13/18x2 Gasket		0,002	ex,ed,et	1	
x	2001802 Werkzeug für Druckeinstellung Gymatik Tool for pressure adjustment Gymatik		0,060	er	1	

*** Verwendungsarten/Applications: (all prices in EUR)
ex =Ersatzteil/spare part ed=Dichtteil/sealing part
et =Trennteil/separate part b =Beistellteil/part provided
bgf=Baugruppe/assembly group er=Reserveteil/repairable spare
ev =Verschleißteil/wearing part ea=Baugruppe auflösen/dissolve assembly group



A	Rückschlagventil ersetzt, Lage richtigg	6422	25.01.10	KN
Ind	Änderung	ÄM	Datum	Kz

Werkstoff

Gewicht 0,9500 kg

PPS BG000862

Ursprung

CAD BG000862

Kanten ISO 13715

Projektions-methode

Bearbeitung DIN EN ISO 1302

Allgemeintoleranz ISO 2768 mK

> bis	0,5 6	6 30	30 120	120 400	400 1000	1000 2000	2000 4000
	± 0,1	± 0,2	± 0,3	± 0,5	± 0,8	± 1,2	± 2,0

URACA

URACA Pumpenfabrik GmbH + Co.KG Bad Urach

Druckventil PN200

D315168 A

Format	Zeichnungsnummer		Rev
gez.	07.10.08	Vöhringer, S.	Maßstab
gepr.	07.10.08	Ott, T.	%
Norm	28.01.10	Heidenreich, D.	

Ausgabedatum 05.11.2013 10:15:38

Freigabe Auftrag

Erstellt mit Ungraphics NX2, Format A3

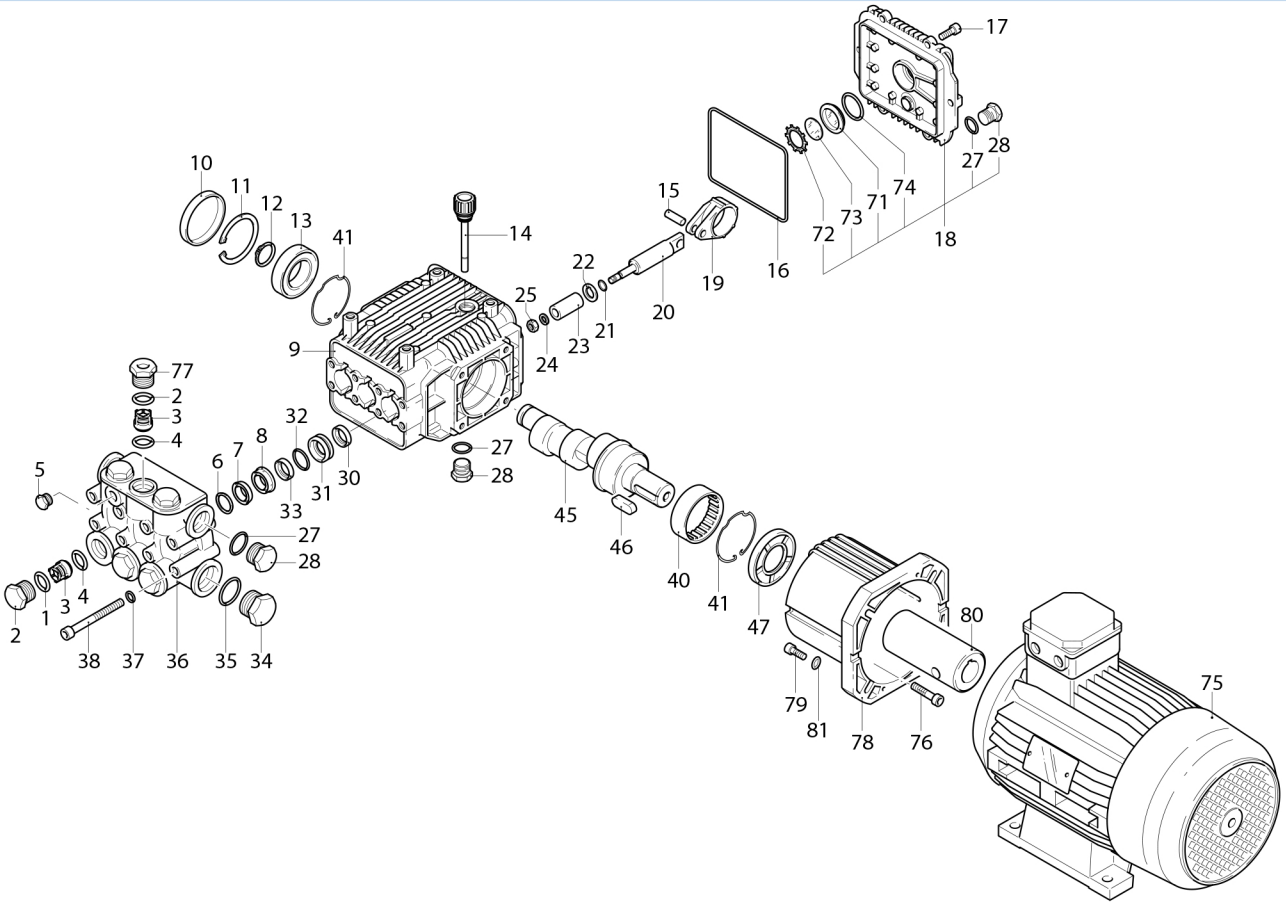
PNo: 1 x BG000862 Druckventil PN200/G3/8 Date new: 07.10.2008
DNo: D315168 mit Manometer NG63/0-250bar Date chg: 27.03.2013
Pressure valve with pressure gauge Code: 5
and check valve

ZPos DPos	TeileNr/Benennung PartNo/Designation	Zeichnungsnummer Drawing No.	Gewicht(kg) Weight (kg)	Verwendungsart Application	Menge Quant	Preis/St Price/pc
001	L37130 Verteilstück G1/4-G3/8-G3/8-G3/8 Manifold		0,318	ex	1	
002	0216580 Anschlußnippel G1/4/G3/8B/SW19x33 PN max.600 bar Nipple		0,053	ex	1	
003	L109233 Dichtring d5,4/9,3x3,2 Gasket		0,001	ex,ed,er	1	
004	L109335 Manometer NG63/G1/4B/0-250bar mit Rohrfeder, glyzeringefüllt, mit Pressure gauge		0,212	ex	1	
005	L113181 Kegel-Einschraubverschraubung NG12/PN630 G3/8A/M20x1,5 Cone union			ex	1	
006	L112647 Rückschlagventil NG12/PN400/G3/8A Check valve		0,380	ex	1	
007	F122658 Dichtring d17/22x2 Gasket		0,003	ex,ed,er	1	

*** Verwendungsarten/Applications: (all prices in EUR)

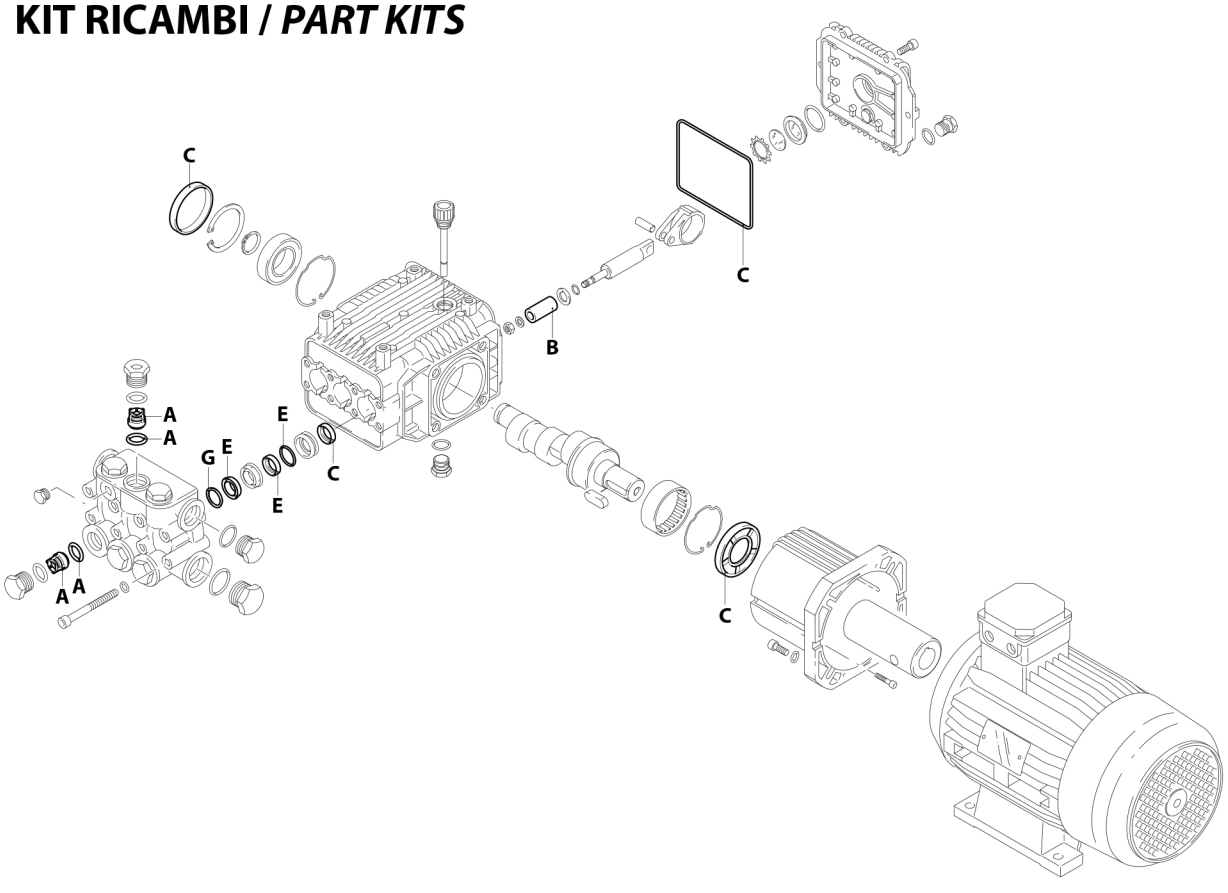
ex =Ersatzteil/spare part	ed=Dichtteil/sealing part
et =Trennteil/separate part	b =Beistellteil/part provided
bgf=Baugruppe/assembly group	er=Reserveteil/repairable spare
ev =Verschleißteil/wearing part	ea=Baugruppe auflösen/dissolve assembly group

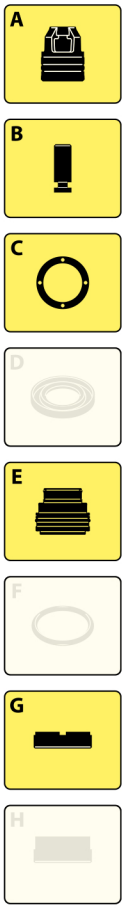
HXMT 1450rpm



UN004070-LS

KIT RICAMBI / *PART KITS*





UN004071-LS

(1788010)

178 Series

HXMT 1450 rpm

05.10 - Cod. 22758

URACA

Pos.	Cod.	Denominazione	Description	Qt	Note
1	960160	Guarnizione OR Ø 17,86x2,62	O-ring	6	
2	1260160	Tappo	Plug	5	
3	1269050	Valvola completa	Complete valve	6	
4	880833	Guarnizione OR Ø 15,54x2,62	O-ring	6	
5	620301	Tappo 1/8" G	Plug	1	◓
6	1780130	Anello appoggio Ø 15	Ring	3	
7	1260130	Tenuta acqua Ø 15	Water seal	3	
8	1780090	Guida pistone anteriore Ø 15	Piston guide	3	
9	1781660	Corpo pompa	Pump body	1	
10	1266740	Tenuta olio	Oil seal	1	
11	1260790	Anello seeger Øi 52	Ring	1	
12	1780550	Anello	Ring	1	
13	1780490	Cuscinetto	Bearing	1	
14	880130	Tappo	Plug	1	
15	1780050	Spina	Pin	3	
16	1780510	Guarnizione OR Ø 106x3	O-ring	1	
17	1200430	Vite TCEI M6x16	Screw	6	C=10Nm
18	1789015	Coperchio completo	Cover	1	
19	1780040	Biella alluminio	Connecting-rod	3	
20	1780060	Pistone di guida	Piston	3	
21	480480	Guarnizione OR Ø 4,48x1,78	O-ring	3	
22	1260091	Disco	Plate	3	
23	1780070	Pistone Ø 15	Piston	3	
24	1260100	Rondella	Washer	3	
25	1260110	Dado M8	Nut	3	◓ C=10Nm
27	740290	Guarnizione OR Ø 14x1,78	O-ring	3	
28	1980740	Tappo 3/8" G ottone	Plug	3	C=20Nm
30	1260460	Tenuta olio	Oil seal	3	
31	1780100	Guida pistone posteriore Ø 15	Piston guide	3	
32	770260	Guarnizione OR Ø 23,52x1,78	O-ring	3	
33	1260440	Tenuta acqua Ø 15	Water seal	3	
34	820361	Tappo 1/2" G ottone	Plug	1	
35	180101	Guarnizione OR Ø 17,5x2	O-ring	1	
36	1780020	Testa	Head	1	
37	1381550	Rondella	Washer	8	
38	1322730	Vite TCEI M6x60	Screw	8	C=15Nm
40	1321190	Cuscinetto	Bearing	1	(d)
41	1321080	Anello	Ring	2	
45	1780230	Albero marcato 9	Shaft	1	
46	1380520	Linguetta	Key	1	
47	1260750	Anello tenuta	Ring	1	(b)
71	1260250	Indicatore livello	Level gauge	1	

Pos.	Cod.	Denominazione	Description	Qt	Note
72	1260430	Anello	Ring	1	
73	1780690	Disco	Plate	1	
74	1140450	Guarnizione OR Ø 20,24x2,62	O-ring	1	
75	44209	Motore	Motor	1	2HP
76	1200430	Vite TCEI M6x16	Screw	4	
77	1260164	Tappo foro 1/4"G	Plug	1	
78	1323160	Flangia F10	Flange	1	
79	540290	Vite TCEI M8x25	Screw	4	
80	1320300	Giunto	Coupling	1	
81	390311	Rondella	Washer	4	

KIT RICAMBI - *PART KITS*

A=KIT 1864 valvole *valves*

Pos.	Q.ty
3	6
4	6

B=KIT 2739 pistoni *pistons*

Pos.	Q.ty
23	3

C=KIT 2786 tenute olio *oil seals*

Pos.	Q.ty
10	1
16	1
30	3
47	1

E=KIT 2741 tenute acqua *water seals*

Pos.	Q.ty
7	3
32	3
33	3

G=KIT 2740 anelli appoggio *support rings*

Pos.	Q.ty
6	3

SIMBOLOGIA - *SYMBOLS*

C Tolleranza coppia di serraggio 0÷10% / *Tightening torque tollerance 0÷10%*

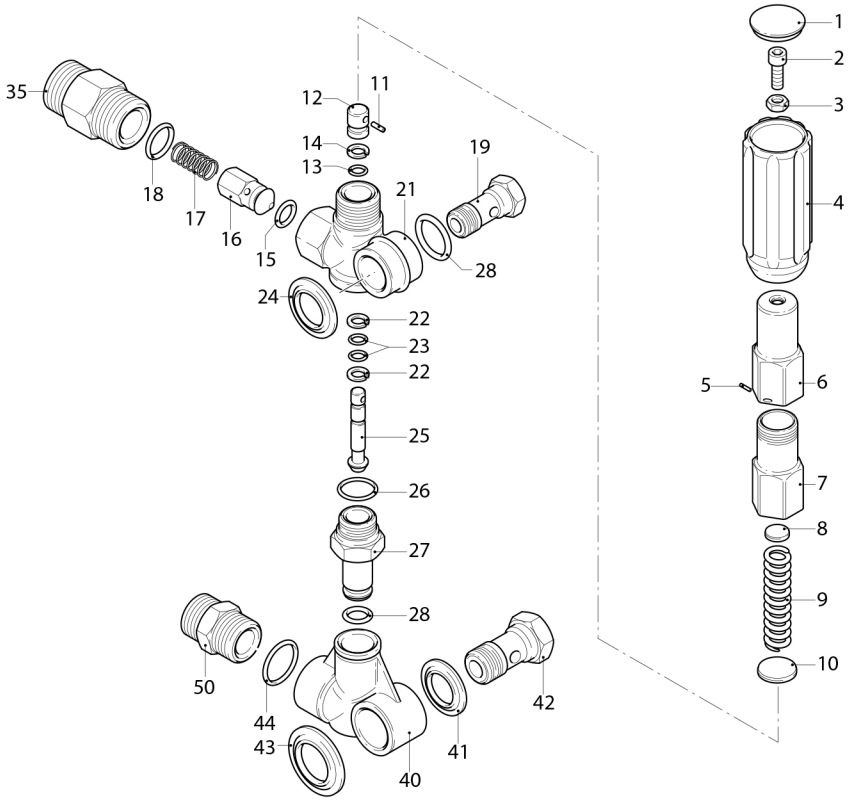
◓ Avvitare con Loxeal 55-14 / *Screw with Loxeal 55-14*

(a) Montare anello tenuta con attrezzo cod. 1941990 / *Fit the seal with tool code nr. 1941990*

(d) Montare con attrezzo speciale cod. 1780610 / *Fit with special tool code nr. 1780610*

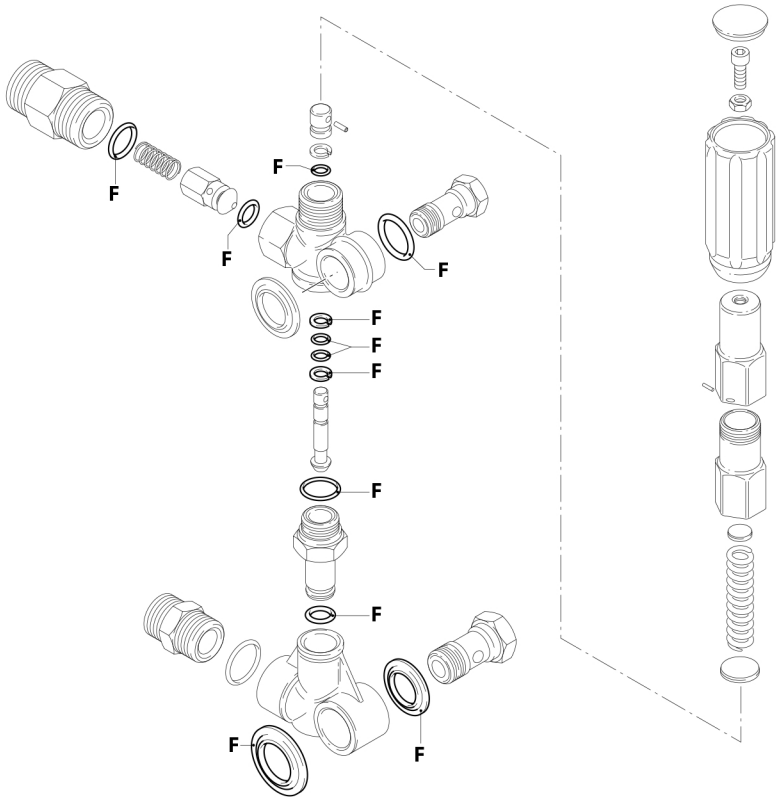
Olio - *Oil*	
Tipo / *Type*	Quantità / *Quantity*
SAE 15W40	0,415 Kg

GYMATIC 3/B



UN004068-IS

KIT RICAMBI / *PART KITS*



UN004069-IS

(1568080)

URACA

Pos.	Cod.	Denominazione		Description	Qt	Note
1	1560580	Tappo		Plug	1	
2	540290	Vite	TCEI M8x25	Screw	1	
3	1660210	Dado	M8	Nut	1	
4	1560400	Manopola		Knob	1	
5	1080070	Spina		Pin	1	
6	1560420	Vite		Screw	1	
7	1560410	Guida		Guide	1	(a) C=35Nm
8	1560440	Piattello		Wobble plate	1	
9	1560350	Molla		Spring	1	
10	1080610	Piattello		Wobble plate	1	
11	1080660	Spina		Pin	1	
12	1080540	Pistone	superiore	Piston	1	⋈ (b)
13	391000	Guarnizione OR	Ø 9,13x2,62	O-ring	1	⋈
14	1080640	Anello	antiestrusione	Ring	1	
15	1560150	Guarnizione OR	Ø 5,94x3,53	O-ring	1	
16	1560100	Otturatore		Shutter	1	
17	1560140	Molla		Spring	1	
18	180101	Guarnizione OR	Ø 17,5x2	O-ring	1	
19	1540272	Vite	3/8" G ottone	Screw	1	C=30Nm
21	1560010	Corpo valvola		Valve body	1	
22	1080550	Anello	antiestrusione	Ring	2	
23	480480	Guarnizione OR	Ø 4,48x1,78	O-ring	2	
24	1560280	Rondella		Washer	1	
25	1560320	Pistone	inferiore	Piston	1	
26	880270	Guarnizione OR	Ø 17,17x1,78	O-ring	1	
27	1560051	Raccordo		Fitting	1	C=35Nm
28	390080	Guarnizione OR	Ø 11,91x2,62	O-ring	2	
35	1560110	Raccordo	1/2" G - 3/8" G	Fitting	1	Ottone
40	1540020	Collettore		Suction fitting	1	
41	1540120	Rondella		Washer	1	
42	1540090	Raccordo	1/2" G	Fitting	1	C=40Nm
43	1560290	Rondella		Washer	1	
44	480440	Guarnizione OR	Ø 17,13x2,62	O-ring	1	
50	1540050	Raccordo	1/2" GAS	Fitting	1	C=40Nm

Pos.	Cod.	Denominazione	Description	Qt	Note

KIT RICAMBI - *PART KITS*

F=KIT 2611
OR
O-Rings

Pos.	Q.ty	Pos.	Q.ty	Pos.	Q.ty	Pos.	Q.ty
13	1	28	2				
15	1	41	1				
18	1	43	1				
22	2						
23	2						
24	1						
26	1						

Pos.	Q.ty	Pos.	Q.ty	Pos.	Q.ty	Pos.	Q.ty

SIMBOLOGIA - *SYMBOLS*

GYMATIC 3/B

Per / *For*
cod. 20080
MAX 250 bar
35 l/min
INLET: 1/2" G (F)
OUTLET: 3/8" G (M)

C Tolleranza coppia di serraggio 0÷10% / *Tightening torque tollerance 0÷10%*

◓ Avvitare con Loxeal 55-14 / *Screw with Loxeal 55-14*

⋈ Lubrificare con grasso Molykote PG54 / *Lubricate with grease Molykote PG54*

(a) Fra posizione 6 e 7 spalmare grasso lubrificante nella filettatura / *In the thread, strew lubricating grease between position 6 and position 7*

(b) Ingrassare l'esterno prima del montaggio nel corpo valvola / *Grease the external before the assembly on the body valve*