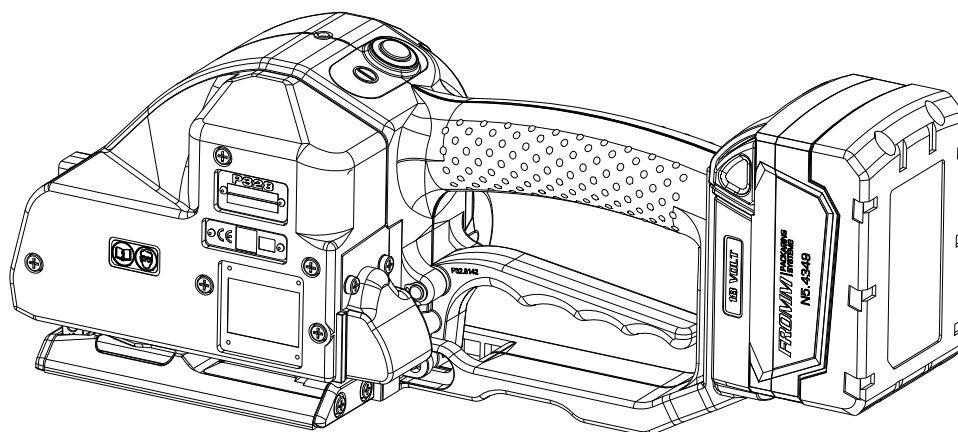


FROMM

OPERATION MANUAL / SPARE PARTS LIST

BATTERY - POWERED PLASTIC STRAPPING TOOL MODEL P329 A/A

43.2722.01



CE Declaration of conformity

We declare that the machine P329
is in conformity with the following standard or
standardised documents:

2006/42/EC,
2014/30/EU

Technical file at:

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A stylized signature of R. Fromm in black ink.

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1 GENERAL POWER TOOL SAFETY WARNINGS

 **WARNING! Read all safety warnings and all instructions.** Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

The term “power tool” in the warnings refers to your mainsoperated (corded) power tool or battery-operated (cordless) power tool.

1.1 Work area safety

- a) **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- c) **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

1.2 Electrical safety

- a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce the risk of electric shock.
- b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- f) **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

1.3 Personal safety

- a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- b) **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- c) **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.
- d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.

- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

1.4 Power tool use and care

- a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- b) **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c) **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- g) **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.

1.5 Battery tool use and care

- a) **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- b) **Use power tools only with specifically designated battery packs.** Use of any other battery packs may create a risk of injury and fire.
- c) **When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another.** Shorting the battery terminals together may cause burns or a fire.
- d) **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.** Liquid ejected from the battery may cause irritation or burns.

1.6 Service

- a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

2 SAFETY RULES FOR STRAPPING TOOLS

2.1 Joints

You are fully responsible to review the joints made by your tool. Become familiar with the seal control and seal adjustment described in this operation manual.

Misformed joints may not secure the load and could cause serious injury. Never handle or ship any load with improperly formed joints.

2.2 Dispensing strap

Only dispense strap from a dispenser specifically designed for strap.

Tuck strap end back into dispenser when not in use.

2.3 Strap warnings

Never use strap as a means of pulling or lifting loads. Failure to follow these warnings can result in severe personal injury.

2.4 Strap breakage hazard

Improper operation of the tool, excessive tensioning, using strap not recommended for this tool or sharp corners on the load can result in a sudden loss of strap tension or in strap breakage during tensioning, which could result in the following:

A sudden loss of balance causing you to fall.

Both tool and strap flying violently towards your face.

Note as follows:

If the load corners are sharp, use edge protectors.

Place the strap correctly around a properly positioned load.

Positioning yourself in-line with the strap, during tensioning and sealing, can result in severe personal injury from flying strap or tool. When tensioning or sealing, position yourself to one side of the strap and keep all bystanders away.

Use the correct strap quality, strap width, strap gauge and strap tensile strength recommended in this manual for your tool. Using strap not recommended for this tool can result in strap breakage during tensioning.

2.5 Cutting tensioned strap

When cutting strapping, use the proper strapping cutter and keep other personnel and yourself at a safe distance from the strap. Always stand to side of the strap, away from the direction the loosened strap end will fly. Use only cutters designed for strap and never hammers, pliers, hacksaws, axes, etc.

2.6 Environment protection

Do not dispose of used batteries in the household refuse, water or by burning them.

For disposal of the batteries the local laws and prescriptions must be observed.

3 TECHNICAL DATA

Description of the tool

The tool model P329 has been designed to strap packages with plastic strapping. The plastic strapping is fed around the package manually or in combination with a strap feeder. The straps are inserted in the tool, tensioned, sealed by friction welding and separated from the strap coil.

Tool size with battery

Length:	351 mm / 13.8"
Width:	134 mm / 5.3"
Height:	143 mm / 5.6"

Weight

with battery:	4.3 kg / 9.6 lbs
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Noise information

The A-weighted equivalent continuous sound level at the work place of the machine operator is typical 79 dB (A).

This value was determined according to EN ISO 11204.

Deviation K: 3 dB

Vibration information

The weighted effective value of the acceleration typically amounts to less than 2.5 m/s².

This value was determined according to DIN EN 60745-1 (12.2003).

Deviation K: 0.5 m/s²

Strap material

Strap qualities:	PET (Polyester) and PP (Polypropylene) plain or embossed. The plastic strap must be according to DIN EN 13394. Use only plastic straps recommended by your sales shop (name and address on the rear of the operation manual).
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Strap dimensions:	16.0 - 19.0 mm / 5/8 - 3/4" x 0.65 - 1.35 mm / .026 - .053" (see chart of types). Use only plastic straps with the correct strap dimensions for your tool.
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Strap tension

Tensioning force*:	Adjustable from 500 - max. 4000 N / 112 - max. 900 lbs.
--------------------	---

Tensioning speed*:	approx. 49 - 79 mm/s / 1.9 - 3.1 inch/sec.
--------------------	--

Seal

Type of seal:	Friction weld sealing
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Strength of seal*:	approx. 75% of the tensile strength of the plastic strap.
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* The value depends on the strap quality.

Working temperature

The ambient temperature should be between -10° and 45° C (14° and 113°F).

The best performance is achieved between 15° and 20°C (59° and 68°F).

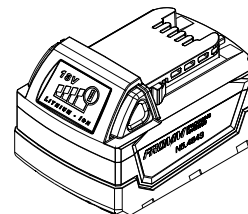
4 ACCESSORIES



Use only parts and accessories mentioned in the operating instruction.
Using other parts or accessories can cause injuries to you and other persons.

4.1 Battery

The battery is not automatically supplied with the tool. The battery has to be ordered separately under the following item number.



Item-No.	Battery	Voltage	Capacity
N5.4349	Li-Ion	18 VDC	4.0 Ah

4.2 Battery - chargers

The charger must be ordered separately according to below shown table.

Item-No.	Voltage / frequency	Admitted for country
N5.4443	220 - 240V / 50 - 60Hz	A, B, BG, BIH, BOL, BR, BY, CH, CL, CZ, D, DK, DZ, E, EAS, EST, ET, F, FIN, GE, GR, H, HK, HR, I, IL, IND, IR, IRQ, IS, JOR, KSA, KWT, L, LAR, LT, LV, MA, MC, MK, MOC, N, NL, P, PK, PE, PL, PRC, PY, RA, RCH, RI, RL, RO, ROK, ROU, RP, RUS, S, SK, SLO, SYR, THA, TN, TR, UA, UAE, YU, YV, (BRN), (BRU), (CY), (EAK), (EAT), (GB), (IRL), (M), (MAL), (OM), (SGP), (Y), (Z), (ZA), (ZW)
N5.4447	120V / 50 - 60Hz	BR, C, CDN, CO, CR, DOM, EC, GCA, J, JA, KSA, LB, MEX, NIC, PA, Puerto Rico, RC, RP, USA, YV
N5.4445	220 - 240V / 50 - 60Hz	AUS, NZ

(..) = an adaptor N52.2102 is required.

Charging time

Item-No.	Battery	Charging time
N5.4349	Li-Ion	approx. 80 min.

4.3 Power supply

With the optional power supply the strapping tool can be run directly at the mains.

The power supply must be ordered according to below table..

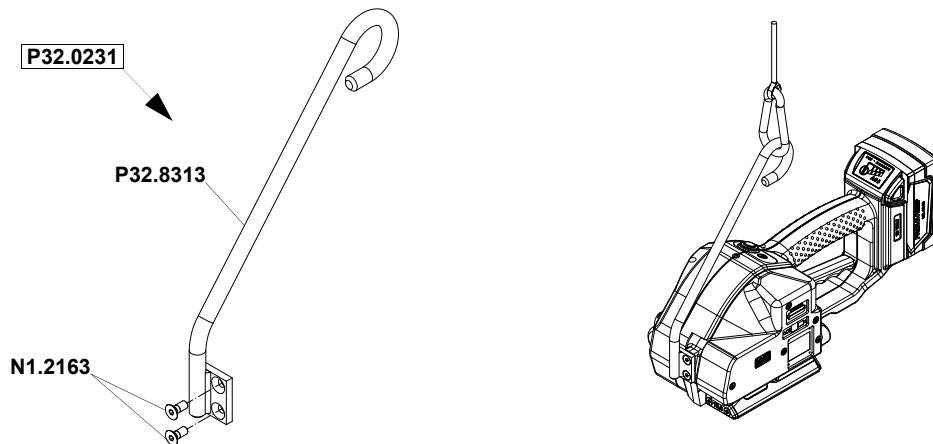
Item-No.	Voltage / frequency	Admitted for country
N5.1471	220 - 240V / 50 - 60Hz	See 4.2 Battery - chargers
N5.1472	120V / 50 - 60Hz	
N5.1473	220 - 240V / 50 - 60Hz	

4.4 Fan

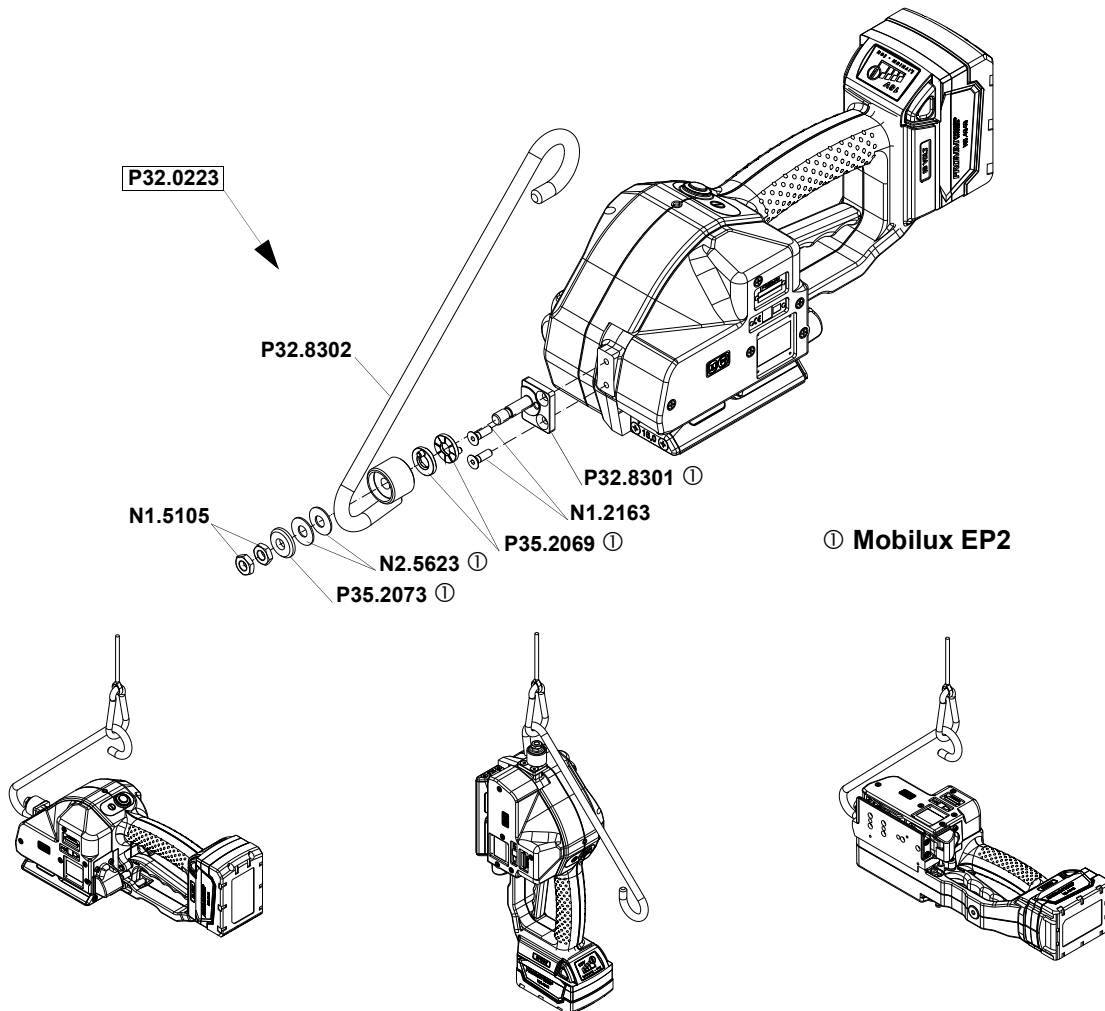
In order to avoid overheating of the motor we recommend at environmental temperatures above 40°C / 104°F using the optional fan P32.0228.

4.5 Suspension

When working stationary the P329 can be suspended at a spring loaded balancer by using a suspension bracket. For working in normal position a stiff suspension bracket with screws and washers can be ordered under item number P32.0231.



With the swivel mounted suspension bracket the package can be strapped in various working positions. The complete suspension bracket can be ordered under item number P32.0223.



4.6 Turning button kit

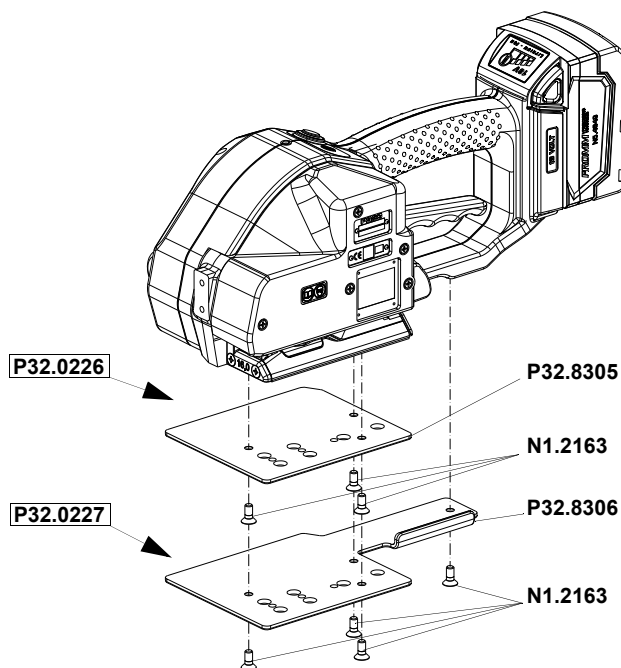
For a remaining adjustment of tension force and welding time. After exchanging of the turning buttons the adjustment can only be changed with the allen key (2mm) that comes with the kit. The kit can be ordered under the item number P32.2061.

4.7 Wearing plate

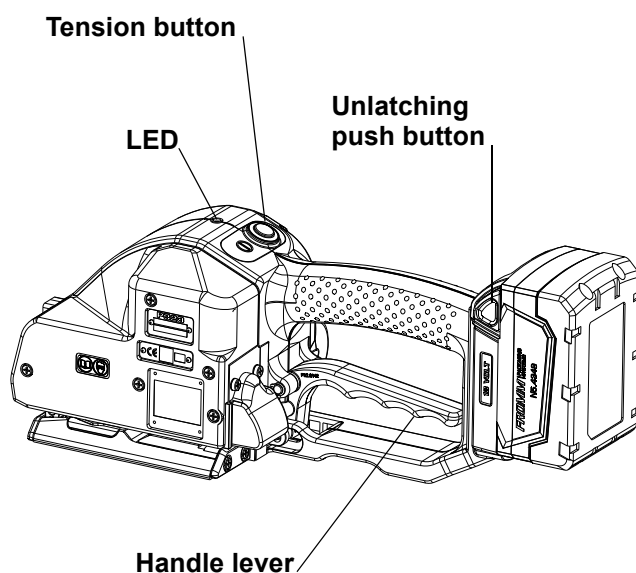
As an option, the tool can be equipped with a wearing plate to protect the base from excessive wear on abrasive package surfaces.

The complete wearing plate can be ordered together with the fastening screws under item number P32.0226.

If the complete bottom side of the tool has to be protected, the plate P32.0227 must be used.



5 OPERATING ELEMENTS



LED - Indication at the tool

Green	During tensioning the LED lights green.
Blue	Welding is initiated.
Green	During welding the LED lights green.
Yellow	Cooling time is running, the tool must not be removed from the strap.
Blue blinking	Motor overheated, Motor cool down time running. If during this time a switch is operated, an acoustic signal happens.
Green + Acoustic signal	Cooling time is finished; the tool can be removed from the strap.
Red	Charge the battery.
Red blinking	Malfunction: e.g. lowering motor blocked. Remove battery Clear malfunction Insert battery
Without indication	Power saving mode

6 OPERATION

6.1 Installation

Do not expose power tools to rain or wet conditions!

The batteries are supplied partially charged.

Before the first use, the battery must be completely charged.

See separate operating instruction of the battery charger.

Never charge a damaged battery. Replace by a new one immediately.

Do not open batteries and store them only in dry and frost-proof rooms.

Do not store the battery pack together with metal objects (short circuit risk).

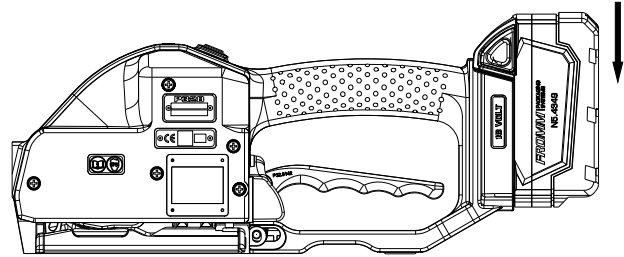
The maximum ambient temperature is 50°C.

Keep dry at all times.

Inserting the battery

- Insert the battery from top to bottom into the tool until both unlatching push buttons are engaged.

When inserting the battery the LED - indication shortly lights green.



Removing the empty battery

If the red LED starts lighting while a tensioning or welding procedure, the capacity of the battery is exhausted. All electric functions of the tool are blocked.

The battery must be recharged.

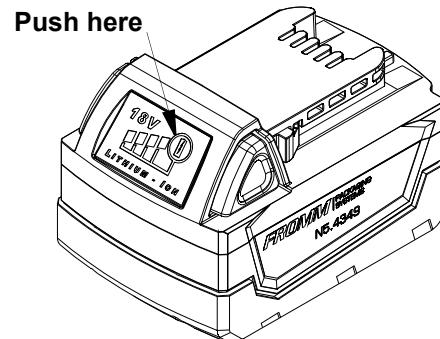
- Push the unlatching push buttons at both sides of the battery.
- Pull the battery out of the tool.

Displaying of the status of the battery charge

By pressing a button the status of the battery can be shown in four steps.

If four lamps are lighting the battery is full.

If only one lamp is lighting shortly the battery has to be charged.



6.2 Adjustments

6.2.1 Preselecting of strap tension and tensioning speed



Do not adjust the tensioning force too high.
If the tensioning force is higher than the tensioning strength of the strap,
the strap will tear while the tensioning.

Tensioning force and tensioning speed can be preselected with the upper adjusting knob.

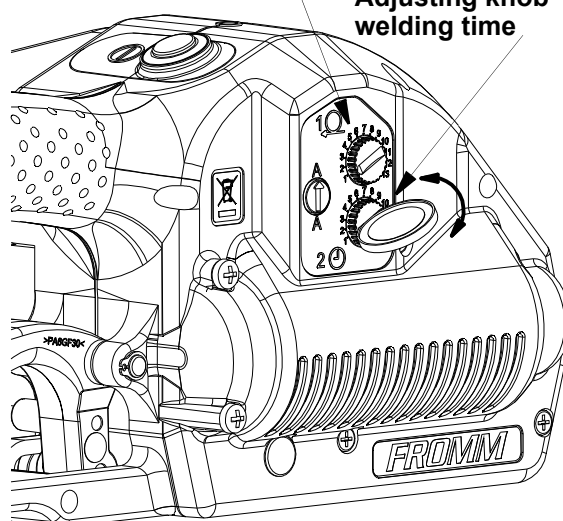
Turning clockwise increases;
 turning counter clockwise decreases the tensioning force and the tensioning speed resp..

The tensioning force on the minimum setting is 500 N (112 lbs) and it is increased on the maximum setting to 4000 N (900 lbs).

The tensioning speed on the minimum setting is 49 mm/s (1.9 inch/sec), it is increasing linear up to 79 mm/s (3.1 inch/sec) on the maximum setting.

**Adjusting knob tensioning force /
 tensioning speed**

**Adjusting knob
 welding time**



6.2.2 Adjusting the welding time

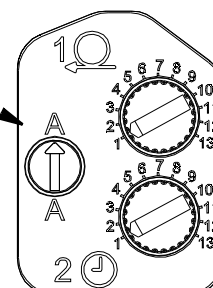
Depending on the size and quality of the strap, different welding times are required.

The welding time can be adjusted at the lower adjusting knob.

Turning clockwise increases,
 turning counter clockwise decreases the welding time.

The adjustment knobs can be easily turned with a coin.

**The adjustment screw
 for operating mode is
 without function at P329 A/A**



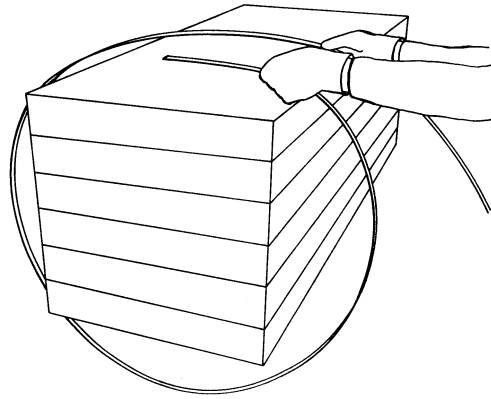
6.3 Feeding the strap around the package

- The strapping is fed around the package as illustrated.



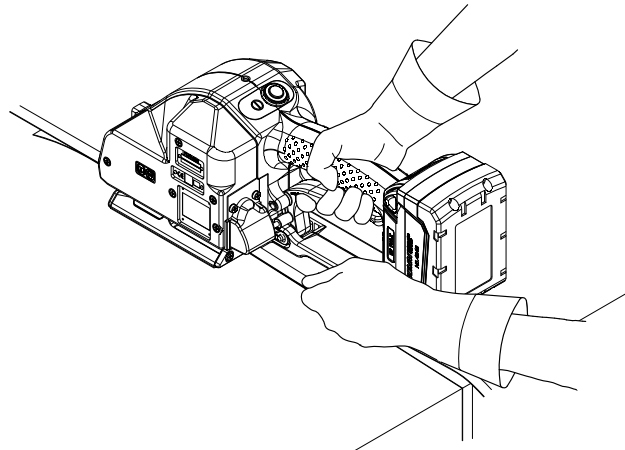
Warning! The plastic strap which will be welded must be free from oil, grease and other dirt.

Dirty plastic straps can't be welded correct!



6.4 Inserting the strap

- Pull up the handle lever firmly with your right hand.
- Insert the two straps well aligned on each other into the strap guide using your left hand. The lower strap end must slightly protrude the end of the base plate.
- Release the handle lever.



After welding and cooling the tool has to be removed from the strapping before a new strapping cycle is started. Disregard of this instruction can cause severe malfunction and damage to the tool.

6.5 Tensioning and sealing the strap

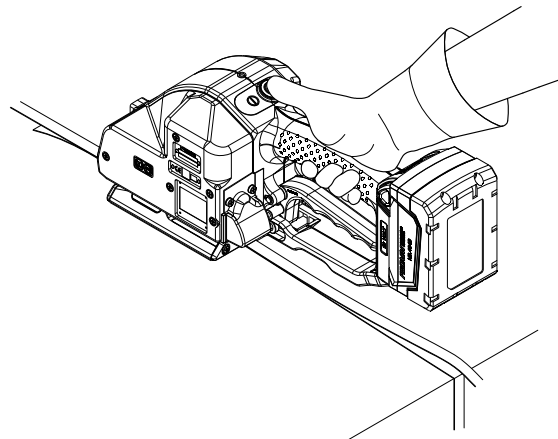
- Press tension button shortly.

During tensioning the LED lights green.

Tensioning can be interrupted by pressing the tension button again or by pulling up the handle lever.

After reaching the adjusted strap tension the sealing cycle is initiated automatically (LED lights blue).

Welding gripper is lowered, the welding starts (LED lights green).



The plastic strap is welded and cut off from the rest of the strap.

After elapsing of the adjusted welding time (see 6.2.2) the cooling time begins (LED lights yellow).

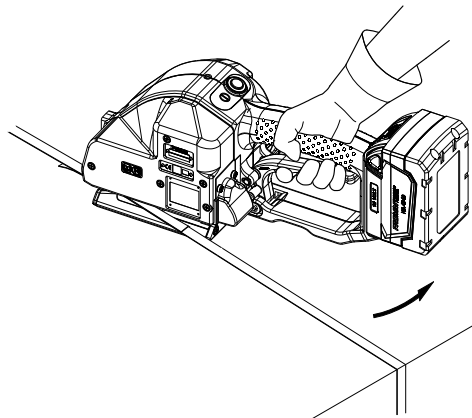


The tool must not be removed from the strap as long as the cooling time is not finished. Disregard of this regulation is causing insufficient seal efficiencies, which can cause severe injuries.

6.6 Removing the tool

After the cooling time is elapsed an acoustic signal happens and the LED lights green again. The sealing process is finished.

- Pull up the handle lever,
- pull the tool right and off the strapping.



6.7 Seal - Control

A regular control of the seal is necessary. The seal can be examined visually. Make a seal, peel it apart and examine it as follows:



Correct seal

The seal must be completely welded over the whole width of the strap on a length of ca. 19 mm. Minor quantities of fused plastic may overflow on sides.



Welding time too short

The plastic strap is not welded over the whole width of the strap. The seal efficiency is insufficient.

Warning! Straps with insufficient seal strength must be removed from the package! Adjust the welding time (see 6.2.2).



Welding time too long

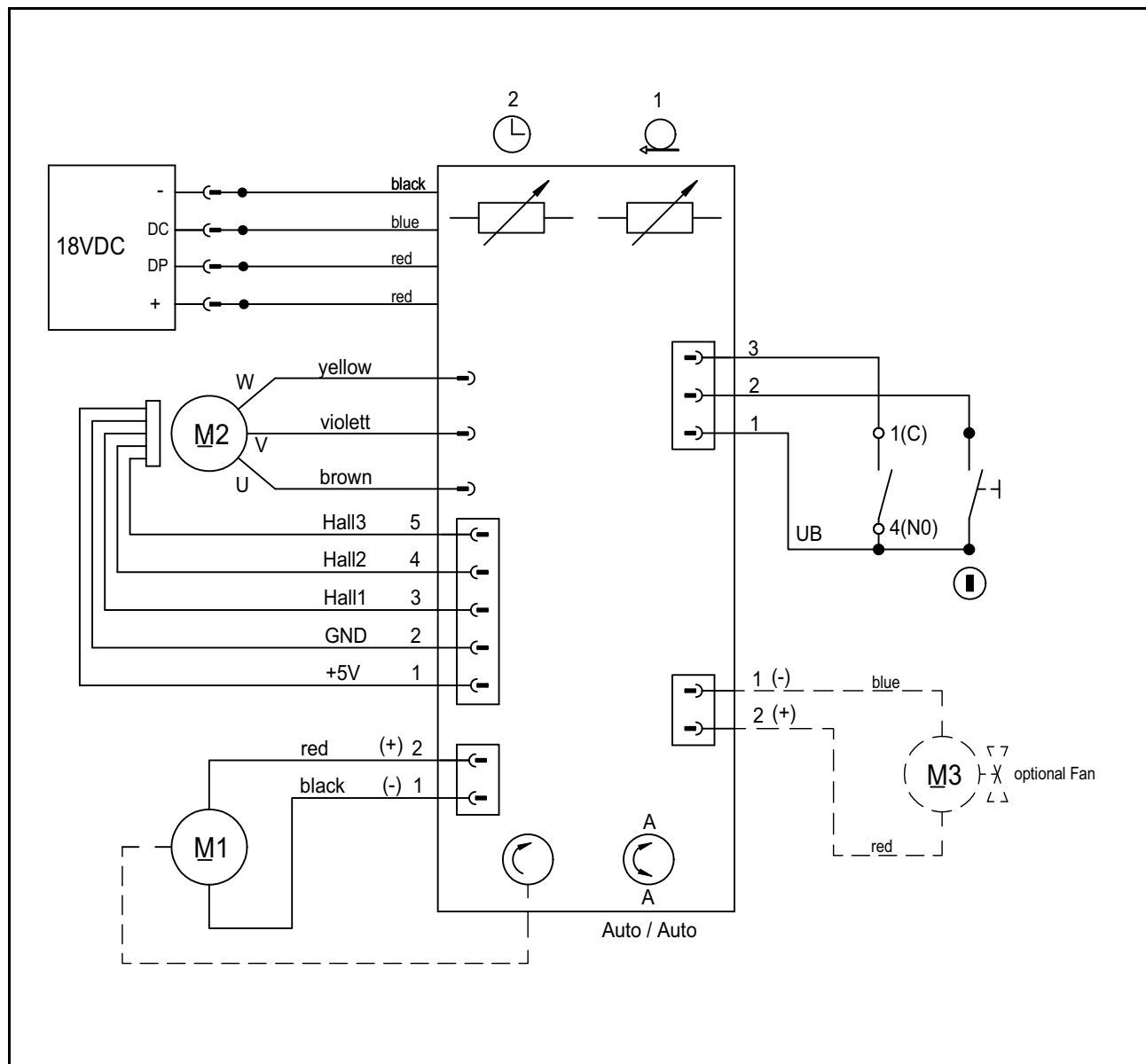
If the welding time is too long the straps are overheated. The fused plastic overflows on both sides of the straps. The seal efficiency is affected.

Warning! Straps with insufficient seal strength must be removed from the package! Adjust the welding time (see 6.2.2).

7 CHART OF TYPES P329 A/A

Item No.	Model	Strap width	Strap thickness
43.2722	P329/16/0.65-1.05/A	16 mm / 5/8"	0.65-1.05 mm / .026 - .041"
43.2732	P329/19/0.65-1.05/A	19 mm / 3/4"	0.65-1.05 mm / .026 - .041"
43.2733	P329/19/1.06-1.35/A	19 mm / 3/4"	1.06-1.35 mm / .042 - .053"

8 ELECTRIC SCHEMATIC ELS.1083



9 EXCHANGE OF WEARING PARTS

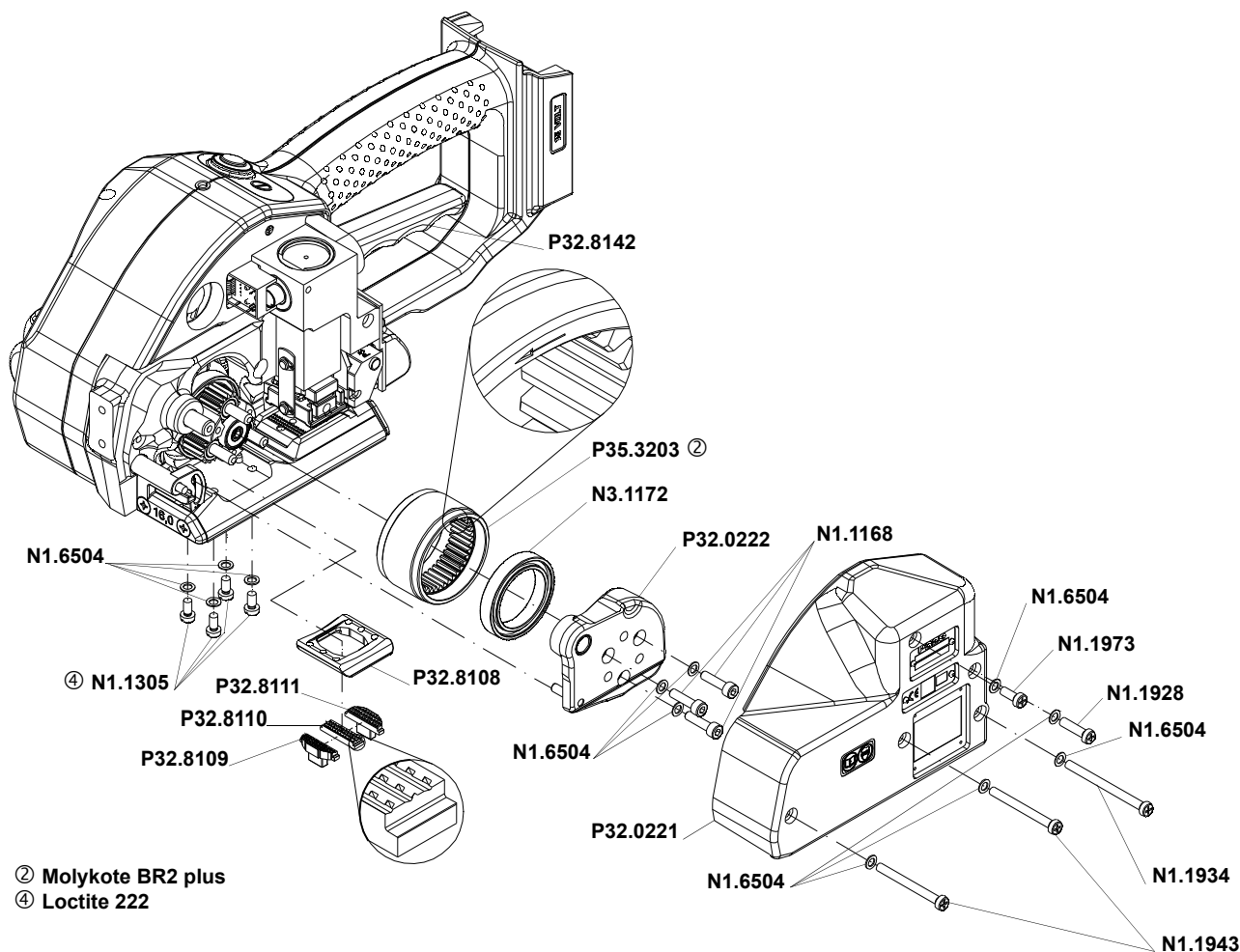


Remove always the battery from the tool before starting maintenance works.

9.1 Exchange of tensioning wheel and grippers

Disassembling

- Unscrew cover P32.0221 and remove it;
- Unscrew end cover P32.0222 and remove it;
- Raise tension wheel P35.3203 by lifting the handle lever P32.8142;
- Remove the tensioning wheel together with the bearing N3.1172 from the tool;
- Unscrew the holder P32.8108 and remove it from the body;
- Remove the grippers (P32.8109, P32.8110, P32.8111) from the body.



Assembling in opposite order.

Assembly advise

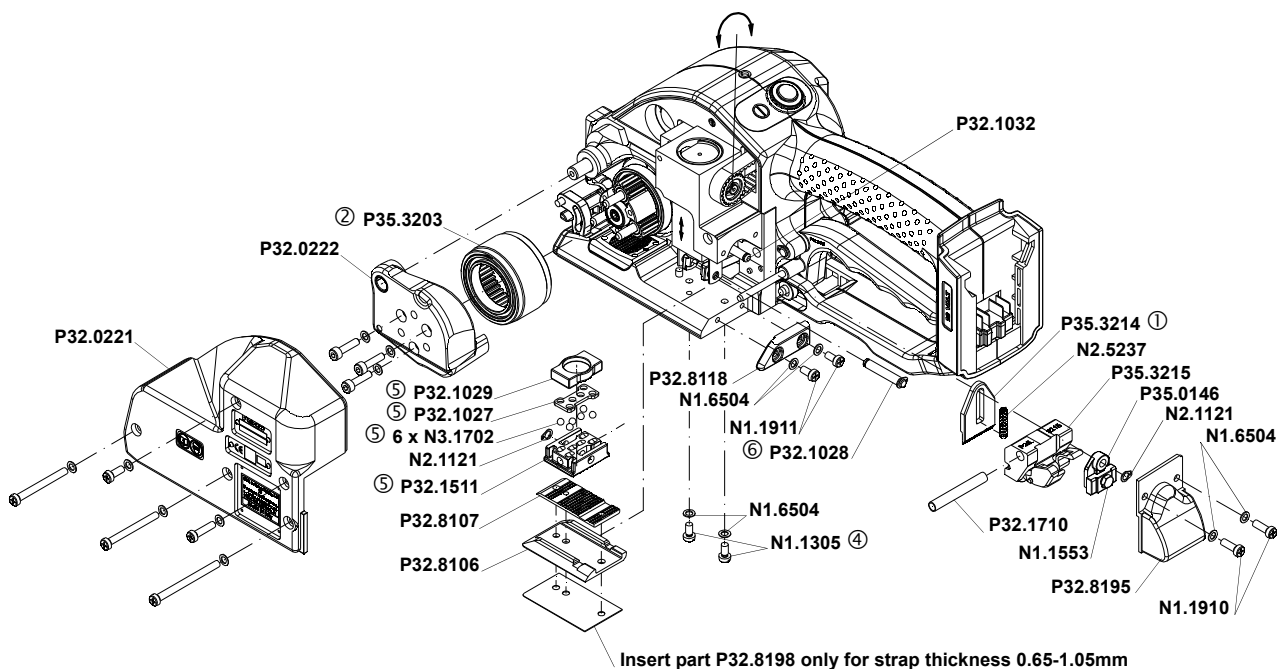
- Lubricate the internal toothing of the tensioning wheel with Molykote BR2 plus.
- Observe the position of the tensioning wheel. The direction of rotation of the tensioning wheel is marked at the front of the tensioning wheel (see drawing).
- Observe the position of the grippers (see drawing).
- Safe the screws N1.1305 with Loctite 222.

9.2 Exchange of cutter, welding stop gripper and welding gripper

Disassembling

- Unscrew cover P32.0221 and remove it;
- Unscrew end cover P32.0222 and remove it;
- Raise tensioning wheel P35.3203 by lifting the handle lever P32.8142;
- Pull off tensioning wheel together with bearing N3.1172 from the body.
- Remove cover P32.8195;
- **Don't** loosen screw N1.1553 at the coupler P35.0146.
- Disassemble the security ring N2.1121 from the coupler, remove the coupler;
- Pull out the centering sleeve P32.1710 from the guide case P35.3215, disassemble the guide case;
- Pull out the pressure spring N2.5237 with a screw driver from the cutter P35.3214;
- Remove the cutter from the driving pin P32.1032;
- Disassemble strap guide plate P32.8118;
- Disassemble the screws N1.1305, lift slightly the welding stop gripper P32.8107 and the steel insert P32.8106 and remove them from the tool;
- Push the steel insert without welding stop gripper under the welding gripper P32.1511 until it touches the parallel pin N2.2110;
- Turn welding gripper down, in case the welding gripper does not sit on the steel insert, put a piece of plastic strap underneath the steel insert;
- Disassemble the safety ring N2.1121 from the bolt P32.1028, remove the bolt from the welding gripper;
- Turn welding gripper up;
- Remove the thrust piece P32.1029 from the tool;
- Pull out the steel insert with care to right under the welding gripper;
- Lift the rocker P32.1024 behind the welding gripper with a screw driver, remove the welding gripper together with the ball cage P32.1027 and the balls N3.1702 from the tool.

- ① Mobilux EP2
- ② Molykote BR2 plus
- ④ Loctite 222
- ⑤ Klüber Isoflex Alltime SL2
- ⑥ Klüber Isoflex NBU 15



Assembling in opposite order.

Assembly advise

- During assembling move the strap guide plate P32.8118 downwards against the holding gripper.
- Pay attention to the fitting position of the cutter (see drawing).
- Safe the screws N1.1305 with Loctite 222.
- Lubricate the rocker and the bolt P32.1028 in the area of the welding gripper with Klüber Isoflex NBU 15.
- Lubricate the balls, ball cage and the running surface of the balls on the welding gripper with Klüber Isoflex Alltime SL2.
- Lubricate the cutter and the driver with Mobilux EP2.

9.3 Adjustment of the coupler

The coupler is adjusted in our works.

In case of replacing the seesaw lever, the coupler or the lever body, the coupler has to be readjusted.

Procedure as follows:

The battery is removed from the tool.

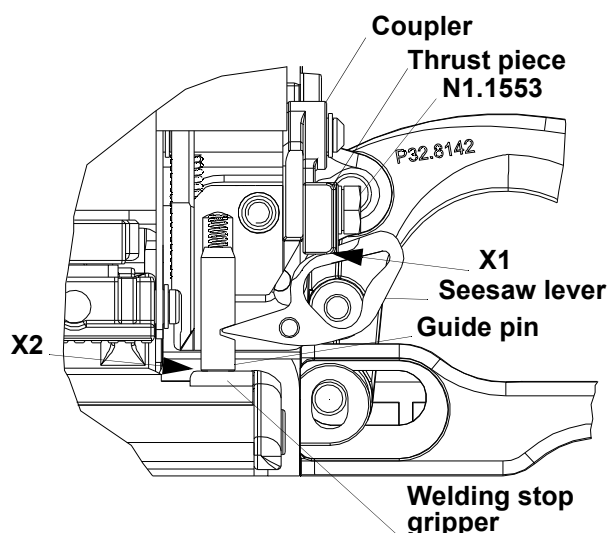
The coupler is fitted into the tool.

- Loosen screw N1.1553.
- Displace thrust piece, so that it touches the two seesaw levers without moving them.
- Re-tighten screw N1.1553.

Control:

The thrust piece must touch the seesaw levers (X1).

Both guide pins must sit on the welding stop gripper (X2).



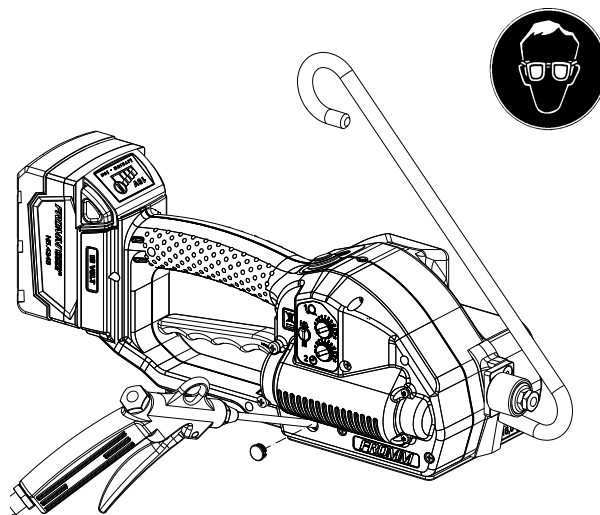
10 CLEANING

Clean strap gripping parts from strap abrasion regularly using compressed air.

Thus also the cover can be removed and with a suitable air gun air been blown on the welding elements.

Do not use any mechanical tool for cleaning.

When cleaning the surface of the tool do not use water or aggressive solvents!



11 SERVICE

Servicing and repair work must only be carried out by authorized service centres.

If the tool breaks down or does no longer operate do not disassemble it. Send it fully assembled to the local service centre (see name and address on the rear page of this manual). Use original packing.

In order to prevent damages to the motor shaft the two needle free wheeling N3.4509/N3.4520 have to be replaced after maximum 80 000 strapping cycles.

The battery powered plastic strapping tool P329 is a high performance tool. We strongly recommend you to have it serviced by an authorized service shop after 12 months at the latest if used one shift per day. If used two or more shifts per day the tool has to be serviced after a shorter period of time.

12 TRANSPORT

Lithium-ion batteries are subject to the Dangerous Goods Legislation requirements. The user can transport the batteries by road without further requirements.

When being transported by third parties (e.g.: air transport or forwarding agency), special requirements on packaging and labelling must be observed.

For preparation of the item being shipped, consulting an expert for hazardous material is required.

Dispatch batteries only when the housing is undamaged.

Tape or mask off open contacts and pack up the battery in such a manner that it cannot move around in the packaging.

Please also observe possibly more detailed national regulations.

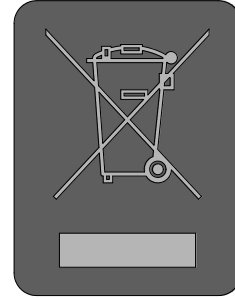
13 DISPOSAL

The machine, rechargeable batteries, accessories and packaging should be sorted for environmental- friendly recycling.

Do not dispose of power tools and batteries/rechargeable batteries into household waste!

Only for EC countries:

According to the European Guideline 2012/19/EU, power tools that are no longer usable, and according to the European Guideline 2006/66/EC, defective or used battery packs/batteries, must be collected separately and disposed of in an environmentally correct manner.



14 WARRANTY CONDITIONS AND LIABILITY

FROMM Holding AG warrants all its strapping tools and machine heads during a period of 12 months from the date sale.

The warranty includes all deficiencies clearly resulting from poor manufacturing or faulty materials. Damage claims as a result of production shutdowns and claims for damage to persons and to property resulting from warranty deficiencies cannot be asserted by the customer.

The warranty excludes:

- wearing parts (tensioning wheels, cutters, punches, dies, notching knives, grippers, batteries and motors),
- deficiencies resulting from improper installing, incorrect handling and maintaining the tool,
- deficiencies resulting from using the tool without or with defective security- and safety devices,
- disregard of directions in the operation manual,
- arbitrary modifications of the tool,
- deficient control of wearing parts,
- deficient repair works of the tool,
- use of consumable products not recommended by FROMM Holding AG.

We reserve the right to modify the product at any time in order to improve its quality.

15 APPROPRIATE USE

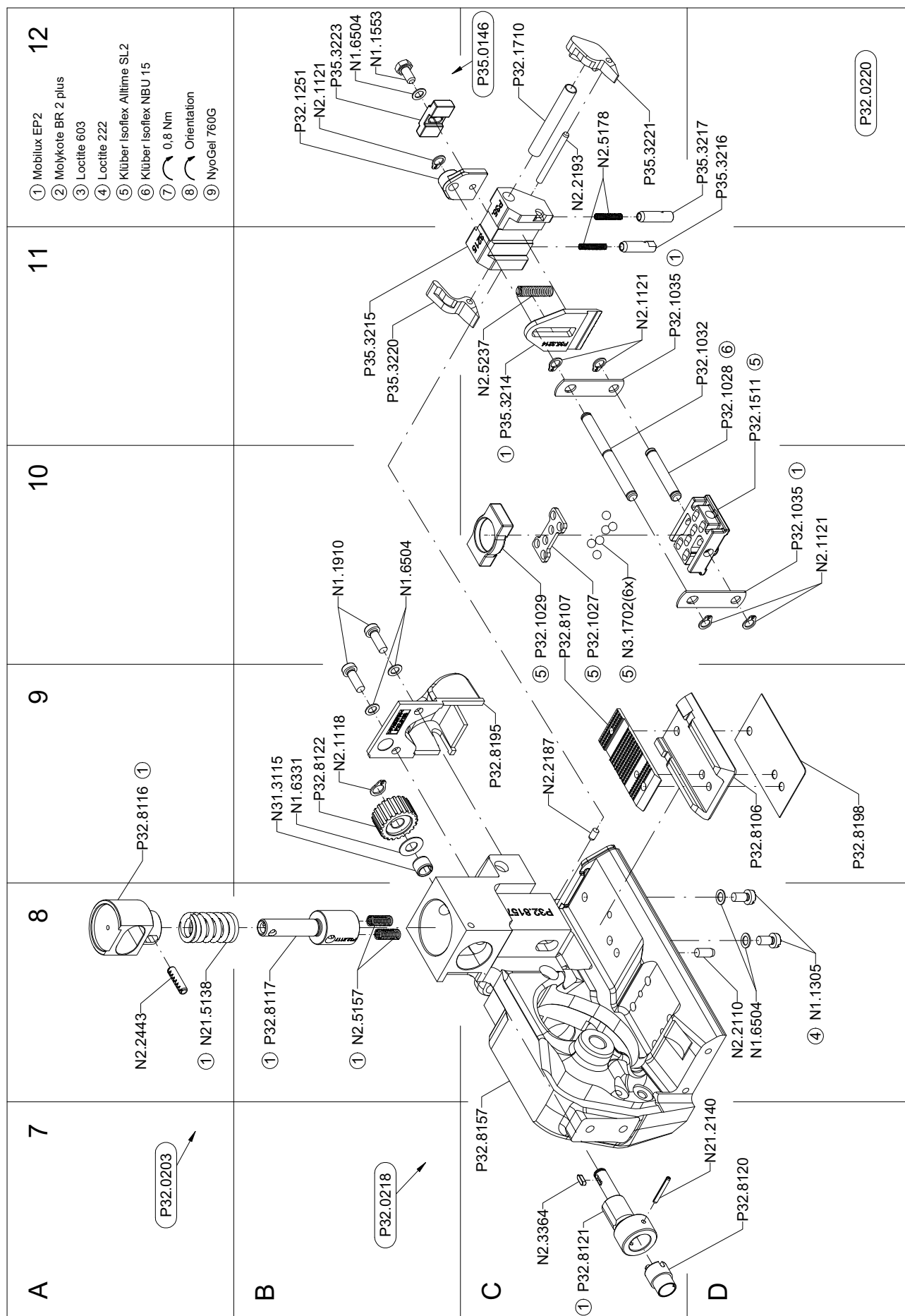
The tool model P329 has been designed to strap packages with plastic strapping exclusively.

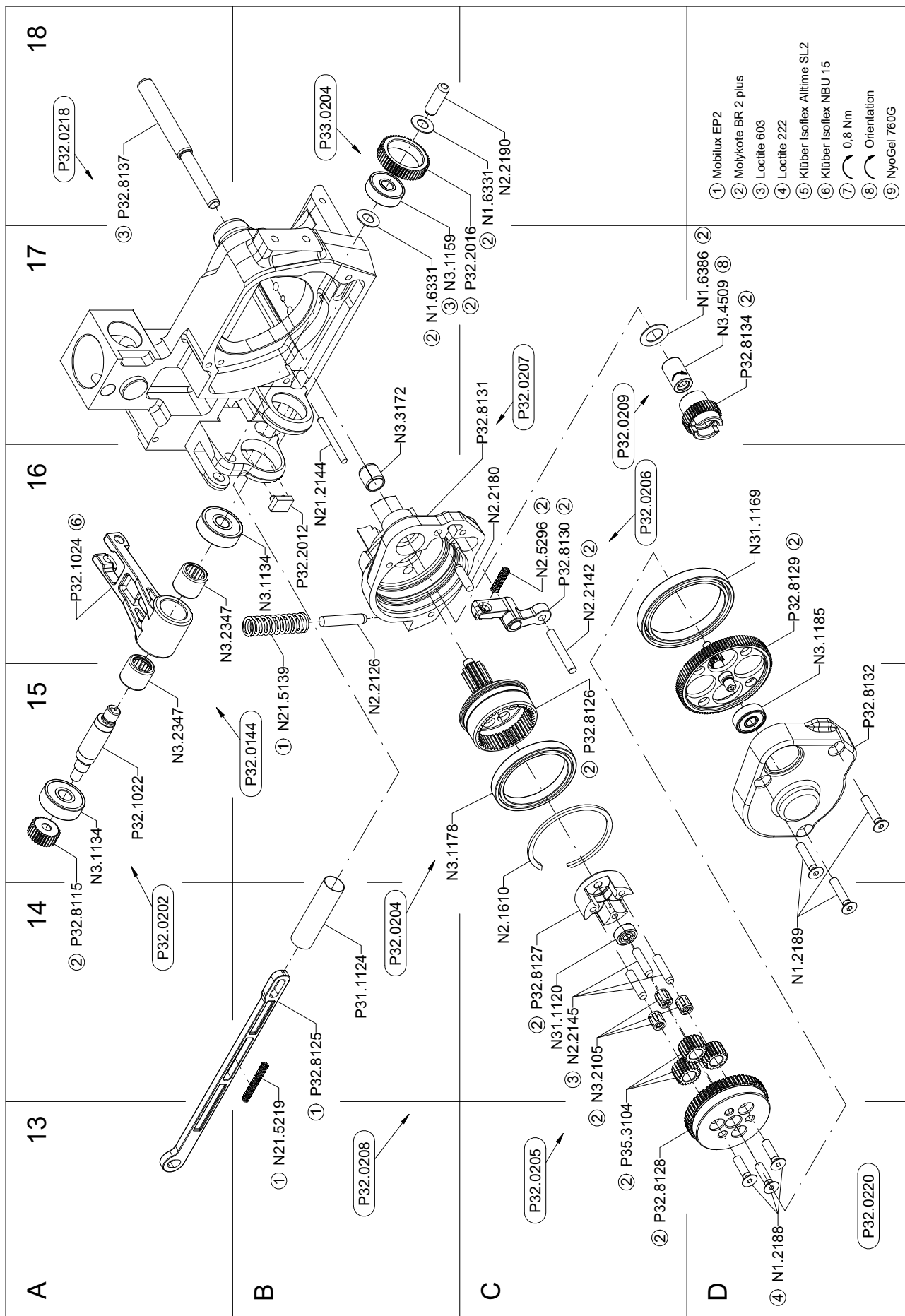
For the use in hazardous areas the tool is not suitable.

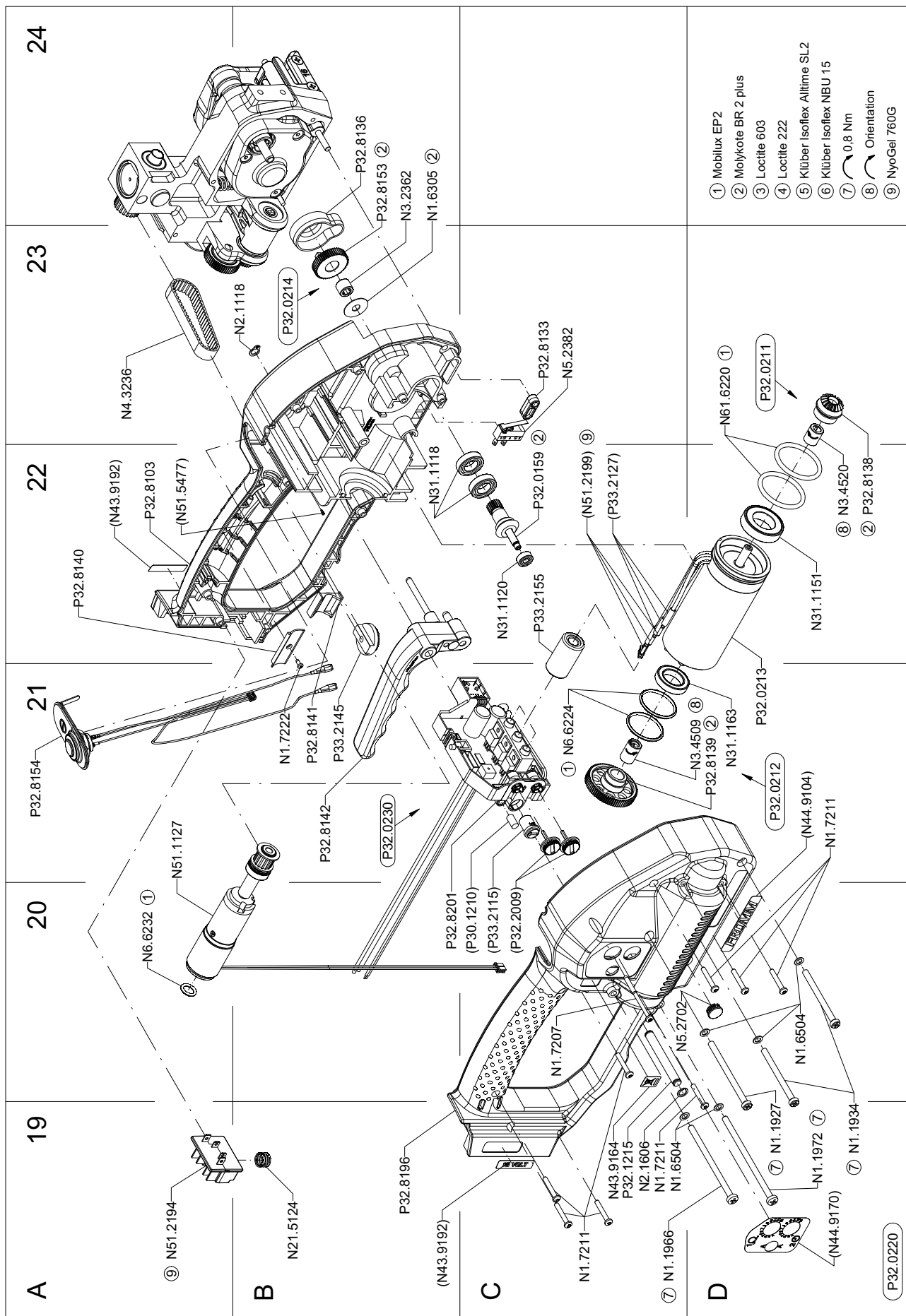
The warranty / liability excludes:

- non appropriate use of the tool,
- disregard of directions in the operation manual,
- disregard of control- and maintenance instructions.









16 SPARE PARTS LIST 43.2722.01

43.2722.01	P329/16/0.65-1.05/A			P329.0002.01		18.02.16
Item-No.		in group	Pcs.	Description	Dimension	Field
N1.1196			3	SCREW	M4 X 16	D6
N1.1305			6	SCREW	M4 X 7.8	C2+
N1.1553		P35.0146	1	HEXAGON SCREW	M4 X 8	B12
N1.1910			2	FLAT HEAD SCREW	M4 X 12	B10
N1.1911			2	FLAT HEAD SCREW	M4 X 8	A3
N1.1927		P32.0220	1	FLAT HEAD SCREW	M4 X 60	D19
N1.1928			1	FLAT HEAD SCREW	M4 X 16	B6
N1.1934			1	FLAT HEAD SCREW	M4 X 50	B6
N1.1934		P32.0220	2	FLAT HEAD SCREW	M4 X 50	D19
N1.1943			2	FLAT HEAD SCREW	M4 X 40	B6
N1.1966		P32.0220	1	SCREW	M4 X 70	C19
N1.1972		P32.0220	1	SCREW	M4 X 80	D19
N1.1973			1	FLAT HEAD SCREW	M4 X 10	A6
N1.2188		P32.0205	3	COUNTERSUNK SCREW	M4 X 16	D13
N1.2189		P32.0208	3	COUNTERSUNK SCREW	M4 X 20	D14
N1.2222			2	COUNTERSUNK SCREW	M4 X 10	C1
N1.6305		P32.0220	1	SPACER WASHER	6 X 18 X 0.5	B24
N1.6331		P32.0220	3	SPACER WASHER	6 X 12 X 0.5	C18+
N1.6386		P32.0220	1	SPACER WASHER	9 X 15 X 0.50	D17
N1.6504			18	SAFETY WASHER	M4	B4+
N1.6504		P32.0220	5	SAFETY WASHER	M4	D20+
N1.6504		P35.0146	1	SAFETY WASHER	M4	B12
N1.7207		P32.0220	1	PT-SCREW	3 X 40	C20
N1.7211		P32.0220	8	PT-SCREW	3 X 20	C19+
N1.7222		P32.0220	1	PT-SCREW	2.2 X 5	B21
N2.1118		P32.0220	2	SECURITY RING	6	B9+
N2.1121			1	SECURITY RING	5	B12
N2.1121		P32.0220	4	SECURITY RING	5	C11+
N2.1606		P32.0220	1	SPRING RING	SW6	C19
N2.1610		P32.0208	1	SPRING RING	SB44	C14
N2.2110		P32.0218	1	PARALLEL PIN	4 m6 X 10	D8
N2.2119		P32.0222	1	PARALLEL PIN	4 m6 X 18	D4
N2.2124			1	PARALLEL PIN	4 m6 X 40	C2
N2.2126		P32.0207	1	PARALLEL PIN	5 m6 X 26	B15
N2.2142		P32.0206	1	PARALLEL PIN	4 m6 X 28	C16
N2.2145		P32.0205	3	PARALLEL PIN	4 h6 X 18	C14
N2.2147		P32.0218	2	PARALLEL PIN	3 m6 X 10	C2
N2.2180		P32.0208	1	PARALLEL PIN	4 m6 X 16	C16
N2.2187		P32.0218	1	PARALLEL PIN	3 m6 X 6	C9
N2.2190		P32.0220	1	PARALLEL PIN	6 h6 X 18	C18
N2.2193			1	PARALLEL PIN	3 m6 X 32	C12
N2.2443		P32.0203	1	DOWEL PIN	4 X 15	A8
N2.3364		P32.0220	1	FEATHER KEY	2 X 2 X 6	C7
N2.4902			2	HAMMER HEAD BOLT	1.85 X 4.76	A6
N2.4902		P32.0221	2	HAMMER HEAD BOLT	1.85 X 4.76	A6
N2.5157		P32.0220	2	PRESSURE SPRING	0.6 X 4.8 X 20/15.5	B8
N2.5178			2	PRESSURE SPRING	0.32X2.82X20.5/20.5	C12
N2.5237			1	PRESSURE SPRING	0.8 X 4.8 X 25/18.5	C11
N2.5296		P32.0208	1	PRESSURE SPRING	0.5 X 4 X 24/16.5	C16
N21.2140		P32.0220	1	DOWEL PIN	2 X 16	D7
N21.2144		P32.0220	1	PARALLEL PIN	3 h6 X 30	B16

[] = Group

* = Wearing parts

43.2722.01	P329/16/0.65-1.05/A			P329.0002.01		18.02.16
Item-No.		in group	Pcs.	Description	Dimension	Field
N21.2145		P32.0207	3	PARALLEL PIN	5 h6 X 37.3	B3
N21.5124		P32.0220	1	PRESSURE SPRING	0.9 X 10 X 15/5.5	B19
N21.5138		P32.0203	1	PRESSURE SPRING	2.5 X 14.2 X 33.5/7.5	A8
N21.5139		P32.0220	1	PRESSURE SPRING	1.25 X 9.8 X 45/14.5	B15
N21.5219		P32.0220	1	PRESSURE SPRING	0.43 X 3.6 X 32.9/27.5	B13
N3.1134		P32.0202	1	BALL BEARING	7 X 22 X7	A15
N3.1134		P32.0220	1	BALL BEARING	7 X 22 X7	B16
N3.1159		P33.0204	1	BALL BEARING	6 X 19 X 6	B17
N3.1172			2	BALL BEARING	30 X 42 X 7	B3+
N3.1178		P32.0204	1	BALL BEARING	35 X 44 X 5	B15
N3.1185			1	BALL BEARING	5 X 16 X 5	C5
N3.1185		P32.0208	1	BALL BEARING	5 X 16 X 5	D16
N3.1702		P32.0220	6	BALL	4 MM	C10
N3.2105		P32.0205	3	NEEDLE CAGE	K 4 X 7 X 7 TN	C14
N3.2107			3	NEEDLE CAGE	K 5 X 9 X 13 TN	B4
N3.2347		P32.0144	2	NEEDLE BUSH	10 X 14 X 12	A15+
N3.2362		P32.0214	1	NEEDLE BUSH	6 X 10 X 8	B24
N3.3150		P32.0222	1	SLIDE-BEARING	8 X 10 X 12	D5
N3.3172		P32.0207	1	SLIDE-BEARING	8 X 10 X 10	B17
N3.4509		P32.0209	1	NEEDLE FREE WHEELING	6 X 10 X 15	D17
N3.4509		P32.0212	1	NEEDLE FREE WHEELING	6 X 10 X 15	D21
N3.4520		P32.0211	1	FREE-WHEELING	6 X 10 X 12	D22
N31.1118		P32.0220	2	BALL BEARING	10 X 19 X 5	B22
N31.1120		P32.0205	1	BALL BEARING	4 X 11 X 4	C14
N31.1120		P32.0220	1	BALL BEARING	4 X 11 X 4	C22
N31.1151		P32.0220	1	BALL BEARING	17 X 30 X 7	D22
N31.1163		P32.0212	1	BALL BEARING	15 X 24 X 5	D21
N31.1169		P32.0205	1	BALL BEARING	40 X 50 X 6	D16
N31.3115		P32.0218	1	SLIDE-BEARING	6 X 8 X 6	B9
N4.3236		P32.0220	1	TOOTHED BELT	9 MM	A23
N4.9159		P32.0221	1	LABEL	<<CE>>	A6
N41.9127		P32.0221	1	ADHESIVE LABEL	20 X 10 X 0.1	B5
N43.9164		P32.8196	1	ADHESIVE LABEL	WEEE	C19
N43.9192		P32.8103	1	ADHESIVE LABEL	18 Volt	A22
N43.9192		P32.8196	1	ADHESIVE LABEL	18 Volt	B19
N44.9104		P32.8196	1	ADHESIVE LABEL	<<FROMM>>	D21
N44.9148			1	TYPE PLATE	<<P329>>	A6
N44.9170		P32.8196	1	ADHESIVE LABEL		D19
N5.2382		P32.8154	1	MICRO SWITCH		C23
N5.2702			1	COVER		C20
N51.1127		P32.0220	1	GEAR MOTOR		A21
N51.2194		P32.0230	1	INSERT PART		A19
N51.2199		N51.1111	3	CONTACT PLUG		C22
N51.5477		P32.8103	1	SPRING PIN		A22
N6.6224		P32.0220	2	O-RING	24 X 2	C21
N6.6232		P32.0220	1	O-RING	8 X 2	A20
N61.6220		P32.0220	2	O-RING	29.5 X 3	D23
P30.1210		P32.8201	1	HOLDING-DOWN CLAMP		C20
P31.1124		P32.0218	1	TUBE		B14
[P32.0144]		P32.0220	1	ROCKER		B15
P32.0159		P32.0220	1	PINION		C22
[P32.0202]		P32.0220	1	WELDING EXCENTRIC		A14
[P32.0203]		P32.0220	1	SPRING BOLT		A7

[] = Group

* = Wearing parts

43.2722.01	P329/16/0.65-1.05/A			P329.0002.01		18.02.16
Item-No.		in group	Pcs.	Description	Dimension	Field
[P32.0204]		P32.0208	1	GEAR WHEEL		B14
[P32.0205]		P32.0208	1	IDLER STEP		C13
[P32.0206]		P32.0208	1	LEVER		C16
[P32.0207]		P32.0208	1	GEAR BODY		C17+
[P32.0208]		P32.0220	1	GEAR		B13
[P32.0209]		P32.0220	1	GEAR WHEEL		C17
[P32.0211]		P32.0220	1	CONICAL GEAR WHEEL		D23
[P32.0212]		P32.0220	1	GEAR WHEEL		D21
P32.0213	*	P32.0220	1	MOTOR		D21
[P32.0214]		P32.0220	1	GEAR WHEEL		B23
[P32.0218]		P32.0220	1	BODY		A1+
[P32.0220]			1	BASE MODEL		D6+
[P32.0221]			1	COVER		A4
[P32.0222]			1	END COVER		D4
[P32.0230]		P32.0220	1	CIRCUIT BOARD		B21
P32.1022		P32.0202	1	WELDING EXCENTRIC		A15
P32.1024		P32.0144	1	ROCKER		A16
P32.1027		P32.0220	1	BALL CAGE		C10
P32.1028		P32.0220	1	BOLT		D11
P32.1029		P32.0220	1	THRUST PIECE		C10
P32.1032		P32.0220	1	DRIVING PIN		D11
P32.1035		P32.0220	2	DRIVER		D10+
P32.1215		P32.0220	1	HANDLE SHAFT		C19
P32.1251		P35.0146	1	PUSHER		B12
P32.1511	*	P32.0220	1	WELDING GRIPPER		D11
P32.1710			1	CENTERING SLEEVE		C12
P32.2009		P32.8201	2	TURNING BUTTON		C20
P32.2012		P32.0220	1	GUIDE		B16
P32.2016		P33.0204	1	GEAR WHEEL		C17
[P32.8103]		P32.0220	1	MOTOR HOUSING		A22
P32.8106			1	STEEL INSERT		D9
P32.8107	*		1	WELDING STOP GRIPPER		C10
P32.8108			1	HOLDER		C3
P32.8109	*		1	GRIPPER		D3
P32.8110	*		1	GRIPPER		D3
P32.8111	*		1	GRIPPER		D3
P32.8115		P32.0202	1	PINION		A14
P32.8116		P32.0203	1	SPRING SLIDE		A9
P32.8117		P32.0203	1	SPRING BOLT		B8
P32.8118			1	STRAP GUIDE PLATE		A3
P32.8120		P32.0220	1	MAGNET		D7
P32.8121		P32.0220	1	ECCENTRIC SHAFT		C7
P32.8122		P32.0220	1	TOOTHED BELT PULLEY		B9
P32.8125		P32.0220	1	PUSHER		B14
P32.8126		P32.0204	1	GEAR WHEEL		C15
P32.8127		P32.0205	1	PLANET SHAFT		C14
P32.8128		P32.0205	1	GEAR WHEEL		C13
P32.8129		P32.0208	1	GEAR WHEEL		D16
P32.8130		P32.0206	1	LEVER		C16
P32.8131		P32.0207	1	GEAR BODY		C17
P32.8132		P32.0208	1	GEARING COVER		D15
P32.8133		P32.0220	1	PUSHER		C23
P32.8134		P32.0209	1	GEAR WHEEL		D17

[] = Group

* = Wearing parts

43.2722.01	P329/16/0.65-1.05/A			P329.0002.01		18.02.16
Item-No.		in group	Pcs.	Description	Dimension	Field
P32.8136		P32.0220	1	HOUSING		B24
P32.8137		P32.0218	1	SWIVEL SHAFT		A18
P32.8138		P32.0211	1	CONICAL GEAR WHEEL		D22
P32.8139		P32.0212	1	GEAR WHEEL		D21
P32.8140		P32.0220	1	RETAINER		A22
P32.8141		P32.0220	1	COVERING		B21
P32.8142		P32.0220	1	HANDLE LEVER		B21
P32.8153		P32.0214	1	GEAR WHEEL		B24
[P32.8154]		P32.0220	1	TOUCH CONTACT-SWITCH		A21
P32.8157		P32.0218	1	BODY		C7
P32.8158		P32.0221	1	COVER		A4
P32.8159		P32.0222	1	END COVER		C5
P32.8168			1	STRAP STOP		B1
P32.8177			1	STRAP GUIDE		D4
P32.8195			1	COVER		C9
[P32.8196]		P32.0220	1	MOTOR HOUSING		B19
P32.8198			1	INSERT PART		D9
[P32.8201]		P32.0230	1	CIRCUIT BOARD		B20
[P33.0204]		P32.0220	1	GEAR WHEEL		B18
P33.2115		P32.8201	1	TURNING BUTTON		C20
P33.2127		N51.1111	3	SHRINKABLE HOSE		C22
P33.2145		P32.0220	1	DISK		B21
P33.2155		P32.0220	1	DOWEL		C22
[P35.0146]			1	PUSHER		C12
P35.3104		P32.0205	3	IDLER GEAR		C13
P35.3201			3	IDLER GEAR		B4
P35.3203	*		1	TENSIONING WHEEL		C4
P35.3214	*		1	CUTTER		C11
P35.3215			1	GUIDE CASE		B11
P35.3216			1	GUIDE PIN		D12
P35.3217			1	GUIDE PIN		D12
P35.3220			1	SEESAW LEVER		B11
P35.3221			1	SEESAW LEVER		C12
P35.3223		P35.0146	1	THRUST PIECE		B12