

Technical perfection and top design

Kränzle[®]
HOCHDRUCKREINIGER

w w w . k r a e n z l e . c o m

Operating manual

High-pressure cleaners

- Kränzle 2160 TS
- Kränzle 2160 TS T
- Kränzle 2195 TS
- Kränzle 2195 TS T
- Kränzle 2175 TS
- Kränzle 2175 TS T



DIN EN
ISO 9001



Read and conform safety instructions before use!

- GB -

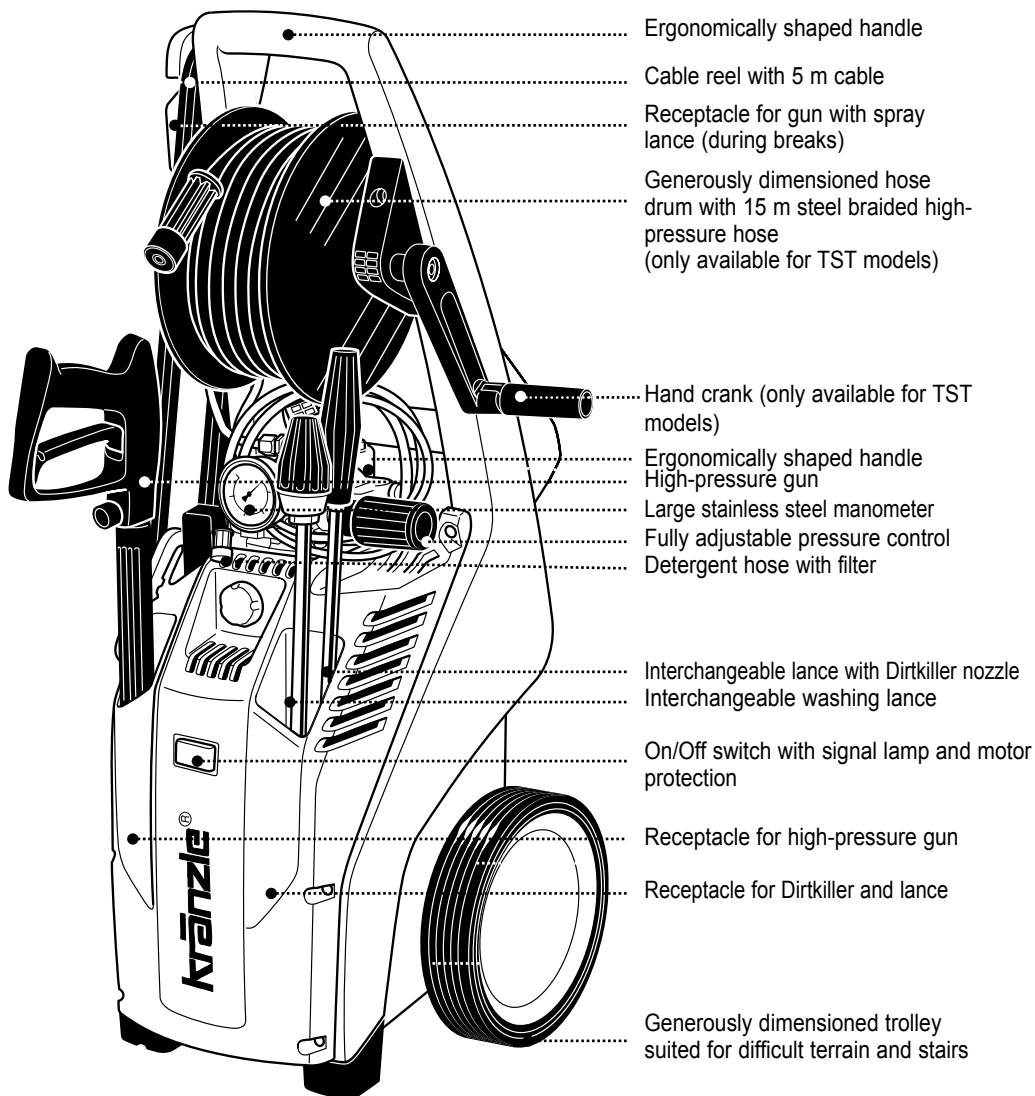


2 Description

Kränzle 2160 TS, 2160 TST,

Kränzle 2195 TS, 2195 TST,

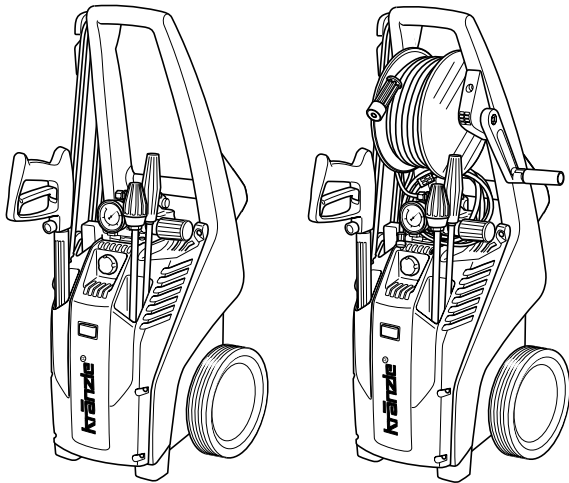
Kränzle 2175 TS, 2175 TST



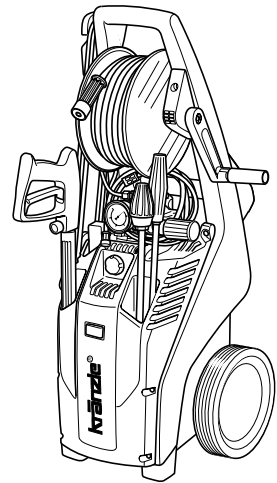
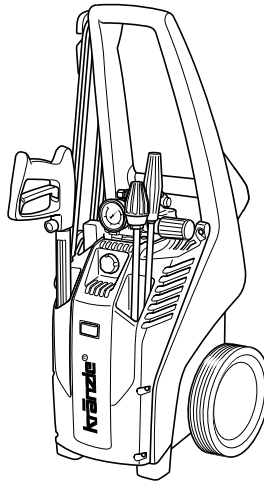
Contents

Description	2
Contents	3
Technical data	4
Overview “This is what you have purchased”	6
General rules	7
Safety precautions – accident prevention	8
Extremely important: Water connection – electrical connection	10
Kränzle- technology	12
Water and cleaning system	12
Lance and spray gun	12
Pressure control valve – safety valve	12
Motor protecting switch	13
High pressure hose and spray device	13
Total stop system	13
Putting into operation	14
Connection to water mains	14
Direct suction	17
When using detergents	18
To shut down the pump / frost protection	19
Small repairs – do it yourself!	20
Inspections – inspection reports	24
EG – Declaration of Conformity	26
Guarantee	27
Accessories for high-pressure cleaners	28
Spare parts list	30
Complete assembly	30
Valve housing	32
Unloader valve and pressure switch	34
Motor	36
Transmission	38
Hose drum	39
Gun with lance	40
Dirtkiller with lance	41
Wiring diagrams	43

4 Technical data



	Kränzle 2160 TS	Kränzle 2160 TS T	Kränzle 2195 TS	Kränzle 2195 TS T
Operating press. fully adjustable	30 - 140 bar		30 - 180 bar	
Nozzle size	25042		25030	
Permissible overpressure	160 bar		195 bar	
Water output	at 1,400 r.p.m. 11 l/min		at 1,400 r.p.m. 8 l/min	
Water inlet temperature	max. 60 °C		max. 60 °C	
Suction height	2.5 m		2.5 m	
Hose drum	no	yes	no	yes
Steel braided high-pressure hose	10 m	15 m	10 m	15 m
Detergent suction	yes		yes	
Connected load	230 V~ 50 Hz, 14 A		230 V~ 50 Hz, 14 A	
Power input	P 1 - 3.2 kW		P 1 - 3.2 kW	
Power output	P 2 - 2.4 kW		P 2 - 2.4 kW	
Weight	37 kg	39,5 kg	37 kg	39.5 kg
Dim. incl. pulling handle in mm	900 x 375 x 360		900 x 375 x 360	
Sound level acc. to DIN 45 635	78 dB (A)		81 dB (A)	
Sound level with Dirtkiller	82 dB (A)		78 dB (A)	
Acoustic power L_{WA}	89 dB (A)		91 dB (A)	
Recoil at lance	approx. 25 N		approx. 25 N	
Vibration at lance	2.0 m/s ²		2.0 m/s ²	

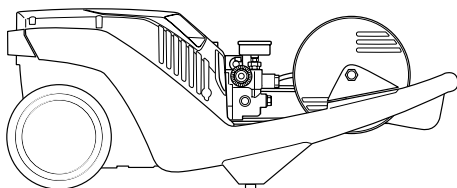


Kränzle 2175 TS

Kränzle 2175 TS T

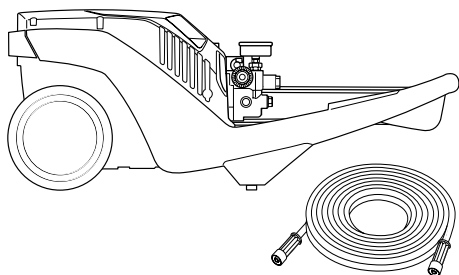
Operating press. fully adjustable	30 - 160 bar	30 - 160 bar
Nozzle size	25042	25042
Permissible overpressure	175 bar	175 bar
Water output	at 1,400 r.p.m. 12 l/min	at 1.400 r.p.m. 12 l/min
Water inlet temperature	max. 60 °C	max. 60 °C
Suction height	2.5 m	2.5 m
Hose drum	no	yes
Steel braided high-pressure hose	10 m	15 m
Detergent suction	yes	yes
Connected load	400 V~ 50 Hz, 6,7 A	400 V~ 50 Hz, 6,7 A
Power input	P 1 - 3.3 kW	P 1 - 3.3 kW
Power output	P 2 - 2.6 kW	P 2 - 2.6 kW
Weight	37 kg	39,5 kg
Dim. incl. pulling handle in mm	900 x 375 x 360	900 x 375 x 360
Sound level acc. to DIN 45 635	78 dB (A)	78 dB (A)
Sound level with Dirtkiller	82 dB (A)	82 dB (A)
Acoustic power L_{WA}	91 dB (A)	91 dB (A)
Recoil at lance	approx. 27 N	approx. 27 N
Vibration at lance	2.1 m/s ²	2.1 m/s ²

6 This is what you have purchased

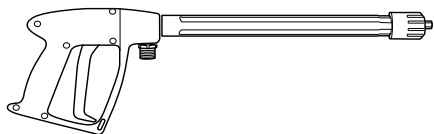


1. Kränzle high-pressure cleaners 2160 TST, 2195 TST, 2175 TST with 15 m steel braided high-pressure hose and hose drum NW 6

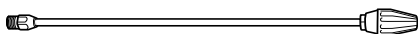
or



Kränzle high-pressure cleaners 2160 TS, 2195 TS, 2175 TS with 10 m steel braided high-pressure hose but without hose drum NW 6



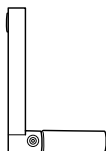
2. Trigger gun with safety catch, insulated handle and screw connection



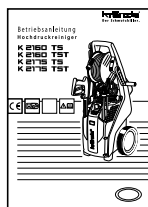
3. Dirtkiller lance with stainless steel pipe



4. Vario-Jet lance with stainless steel pipe



5. Handle with fixing screw for hose drum



6. Operating manual

General rules

■ Range of application

Use machines for cleaning tasks with high-pressure water jet and detergents or with high-pressure water jet without detergents only.

■ Inspections

The machine must be inspected according to the “Guidelines for Liquid Spray Devices” at least once every 12 months by a qualified person, to ensure that continued safe operation is guaranteed. The results of the inspection are to be recorded in writing. This may be done in any form. For inspection reports see pages 22 - 25.



High-pressure cleaners used for commercial purposes have to be checked by a qualified person at least every 12 months!

■ Accident prevention

The machine is designed for accidents to be impossible if used correctly. The operator is to be notified of the risk of injury from hot machine parts and the high pressure water jet. The “Guidelines for Liquid Spray Devices” must be complied with. (see pages 8 and 9).

■ Oil change:

The first oil change should be carried out after approximately 50 operating hours, then every year or after 1000 operating hours. If the oil turns grey or white, you must change the oil of your high pressure pump in any case.

Put the machine into a horizontal position, then open the oil discharge screw at the bottom of the device over a collection reservoir. The oil is to be caught in the reservoir and disposed of in an approved manner.

New oil: 0,5 l - Motor oil W 15/40.

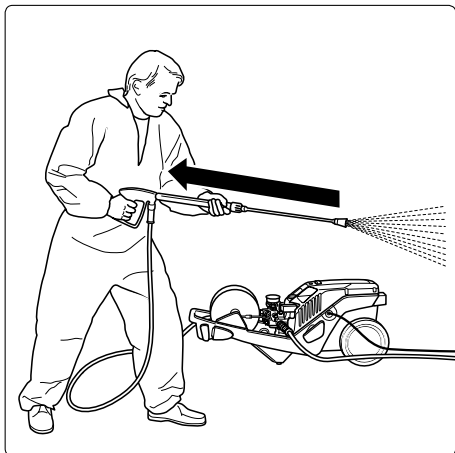


Oil leakage: If oil leaks contact your nearest after-sales service (dealer) at once. (Ecological damage, damage to the transmission)

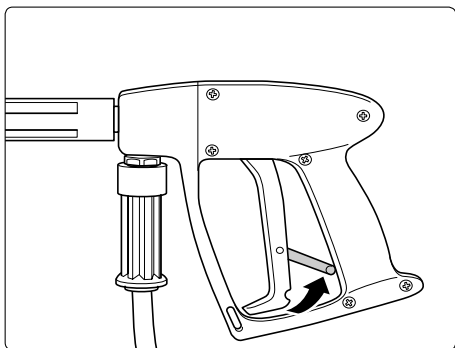


In case of increased humidity or fluctuations in temperature development of condensed water is possible; if the oil turns grey, you must change it.

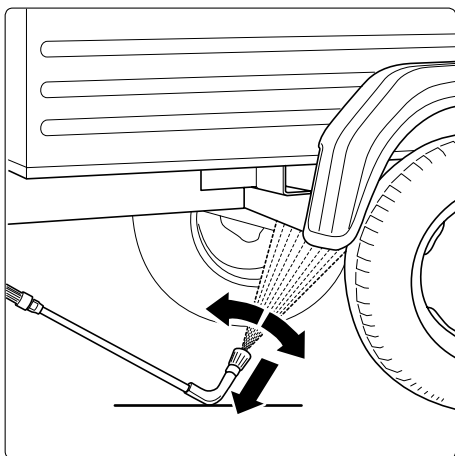
8 Safety precautions



Bear in mind that during cleaning tasks with a high-pressure water jet a significant recoil at the lance arises (see technical data on page 4).

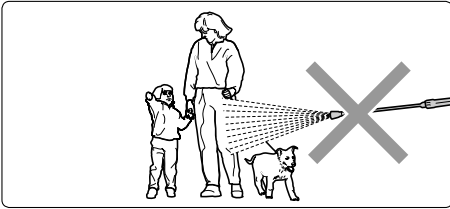


Apply the safety catch on the trigger gun after each use, in order to prevent unintentional spraying!

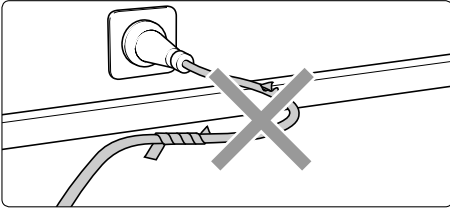


Always aim the underbody lance! Bear in mind when using a curved or angled spraying lance that there is a significant amount of torque in the recoil!

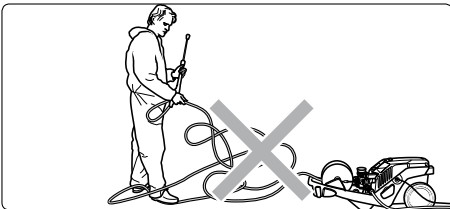
Safety precautions - That`s forbidden!



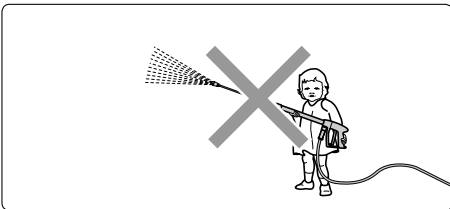
Never direct the water jet at people or animals!



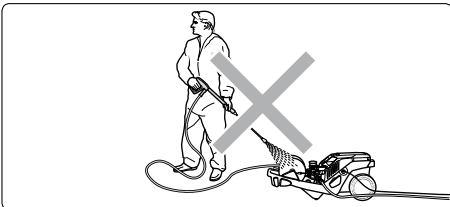
Only use power cables which are in perfect working order! Do not damage the power cable or repair it incorrectly!



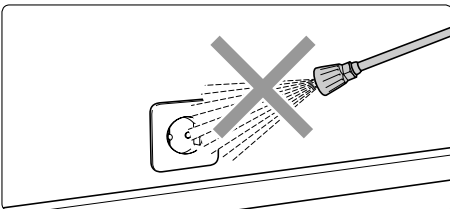
**Never pull the high pressure hose if it has formed kinks or “nooses”!
Never pull the hose over sharp edges!**



Never allow children to use the high pressure cleaner!



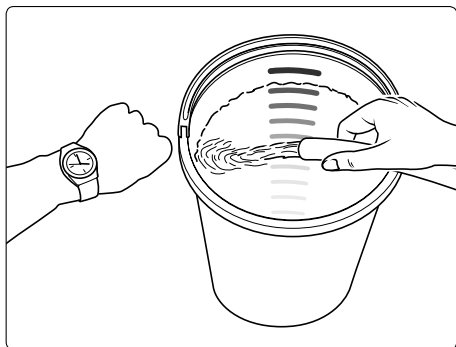
Never direct the water jet at the machine itself!



Never direct the water jet at a power socket!

10 Please note - important!

■ Lack of water



Lack of water occurs more often than you probably believe. The more powerful a high-cleaner is the greater is the danger that a lack of water occurs. If there is only an insufficient amount of water available, cavitation arises inside the pump, which is normally noticed too late or even not at all.

The pump will be destroyed!

Please check the available quantity of water by filling a bucket with litre scale for one minute.

The following minimum quantity of water is necessary for a safe and problem-free operation of the high-pressure cleaner:

Kränzle 2160 TS / TS T: 11 l/min

Kränzle 2195 TS / TS T: 8 l/min

Kränzle 2175 TS / TS T: 12 l/min



If the metered quantity of water is too small, you have to use a different water connection, guaranteeing the necessary output.

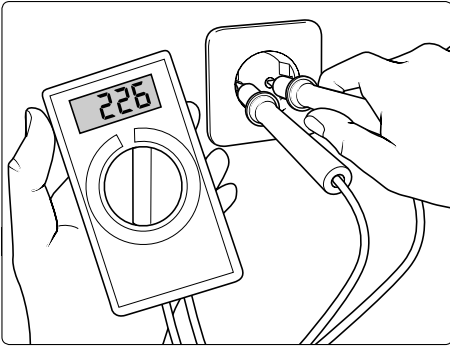
Lack of water leads to an accelerated wear of the joints (no guarantee).

■ Connection to water supply

Please pay attention to the regulations of your waterworks company! In accordance with DIN EN 61770, the machine may not be directly connected to the public drinking water supply lines. A brief connection however is permissible according to DVGW (German Association for Gas and Water Affairs) if a tube ventilator with check valve (Kränzle Order-No. 41.016 4) is built into the water supply. Also indirect connection to the public drinking water supply lines is permissible by way of free emission in accordance with EN 61 770; e.g. by using a reservoir with a float valve.

Direct connection to a non-drinking water supply line is permissible.

■ Insufficient quantity of electricity



If there are too many collectors in your proximity connected to the network at the same time, the available voltage and the current intensity may decline. Consequently the motor of the high-pressure cleaner does not start or even blows.

The power supply may also be insufficient if the power cable is too long or too thin. If extension cables are too long, this may lead to a voltage drop causing malfunctions or start-up difficulties.

Connected load:

Kränzle 2160 TS / TS T: 230 V ~, 50 Hz

Kränzle 2195 TS / TS T: 230 V ~, 50 Hz

Kränzle 2175 TS / TS T: 400 V, 50 Hz (phase-sequence not significant)



Check the line fusing and have the voltage and the available current intensity checked by an expert in case of uncertainty.

■ Electrical connection

The machine is supplied with an electrical power cable with plug. The mains plug must be fitted to a standard grounded socket with a **30mA** residual current operated device. The socket must be protected with a **16A delay** action fuse on the mains side. When using an extension cable, this must have an earthed lead which is properly connected to the socket. The conductors in the extension cable must have a minimum cross section of **1.5 mm²**. Plug connections must be of a spray-proof design, and may not be located on a wet floor. With extension cables of more than 10 m the minimum cross section must be **2.5 mm²**! When using a cable drum, always keep the cable wound as far as possible.

12 Kränzle technology

■ Water and Cleaning System

Water can be connected at mains pressure to the high pressure pump or it can be sucked directly from a storage tank. The water is then forced under pressure by the high pressure pump to the lance. The high pressure jet is formed by the nozzle at the end of the lance.



Environmental, refuse disposal and water protection regulations must be observed!

■ Lance with trigger gun

The machine can only be operated when the safety trigger is squeezed. When the lever is squeezed, the spray gun opens. The liquid is then pumped to the nozzle. The spray pressure increases and quickly reaches the selected operating pressure. When the trigger is released, the trigger gun closes and any further spraying of liquid from the lance is stopped. The pressure gauge must show 0 bar.

The increase in pressure when the trigger gun is closed causes the pressure control valve-safety valve to open. The motor is switched off by the pressure switch. When the trigger gun is opened, the pressure control valve - safety valve closes, the motor is started and the pump resumes pressure spraying from the lance with the selected operating pressure.



The trigger gun is a safety device. Repairs should only be performed by qualified persons. Should replacement parts be required, use only components authorized by the manufacturer.

■ Pressure control valve - safety valve

The pressure control valve - safety valve protects the machine from a build up of excess pressure, and is designed not to permit an excess pressure to be selected for operation. The limit nut on the handle is sealed with a spray coating. The operating pressure and spray rate can be steplessly adjusted by turning the handle.



Replacements, repairs, new adjustments and sealing should only be performed by qualified persons.

■ Motor protection switch

The motor is protected from overload by a motor protection switch, which cuts out the motor in the event of overload. However should the switch trip frequently, the cause of the malfunction should be located and rectified (see page 11).



Replacements and inspection work should only be performed by qualified persons when the machine is disconnected from the power supply, i.e. with plug pulled out from the electrical socket.

■ High pressure hose and spray device

The high pressure hose and spraying device supplied with the machine are made of high grade material, they are also optimised for the machine and marked as required by the appropriate regulations.



If replacement parts are required, only such parts that are authorised by the manufacturer and which bear the markings required by the appropriate regulations may be used. The high pressure hose and spray device must be connected in a pressure-tight manner. The high pressure hose may not be driven over, pulled excessively, or twisted. The hose may under no circumstances be pulled over sharp edges, since otherwise the guarantee is automatically void.

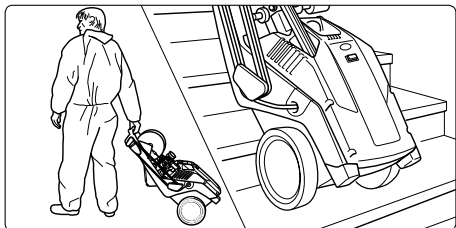
■ Total stop system

The new Kränzle K2160 / K2195 / K2175 are equipped with an electrical Start/Stop control. Having connected the high-pressure cleaner to the water supply and having connected the HP hose, switch the machine “on” using the On/Off switch. A red light in the switch flashes.

The motor is started by opening the gun. The motor is switched off after the gun has been closed. The high-pressure cleaner works in stand-by until the On/Off switch is switched to “Off”. The red light in the switch goes out.

Having switched off the machine shortly press the trigger to release the pressure to be able to unfasten the HP hose.

14 Putting into operation



1. Move high-pressure cleaner to the job site.

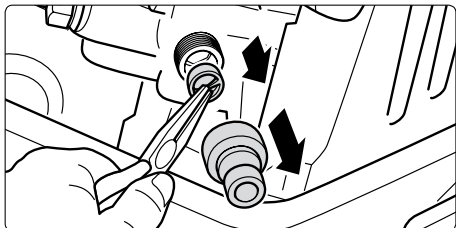
The Kränzle 2160 / 2195 / 2175 are movable machines with sturdy trolleys ideally suited for difficult terrain and stairs.

Never pull the machine if the water supply hose is still connected!

■ Setting up – Location

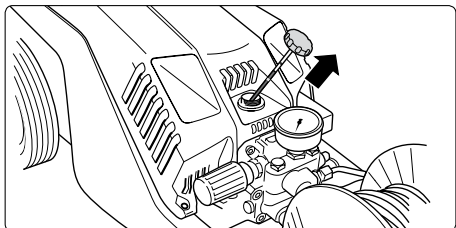


Neither set up or operate the machine in rooms where there is a risk of fire or explosion nor put it into puddles. Do not use the machine under water.



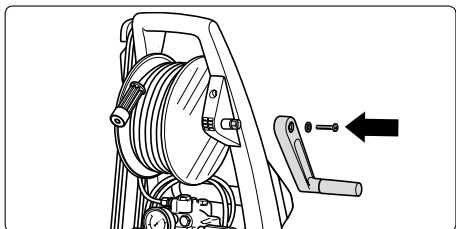
2. Check water inlet filter for cleanliness prior to putting the machine into operation!

Manually unscrew hose attachment. Take out the serial water inlet filter using needle nose pliers and clean if filter is soiled.

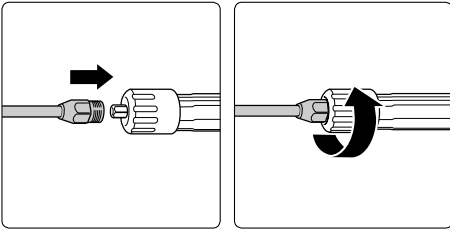


3. Each time check oil level at the oil dipstick prior to putting the HP cleaner into operation. (Take care that cleaner is in horizontal position!)

The oil level must show between the two markings.

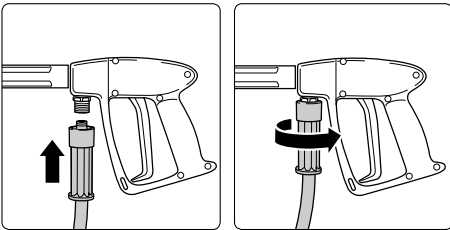


4. Put up machine. Release fixing screw from hexagonal base of hose drum, put tiltable handle onto the hexagonal base and fix with screw.



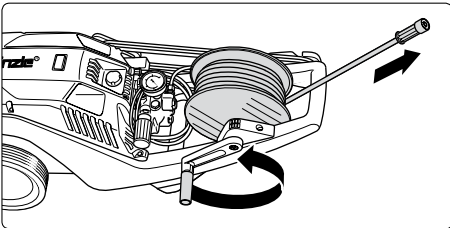
5. Push on lance or Dirtkiller lance to gun.

6. Screw together lance and gun.

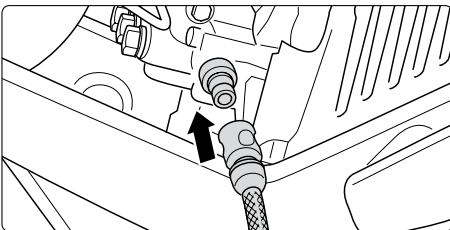


7. Push on HP hose to gun.

8. Screw together HP hose and gun.



9. Put HP cleaner into horizontal position. **These machines must be operated in horizontal position!** Unwind HP hose from hose drum without kinks and nooses.



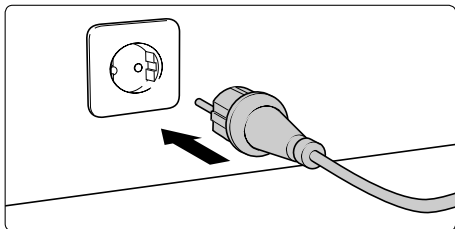
10. Connect water hose to water tank. The cleaner may be connected to water mains with cold or 60°C warm water. Alternatively water can be sucked in from a container (see page 17).

■ Be careful when using hot water!



When running your high pressure cleaner with hot water of 60° C raised temperatures occur. Do not touch the metal parts of the cleaner without safety gloves!

16 Putting into operation



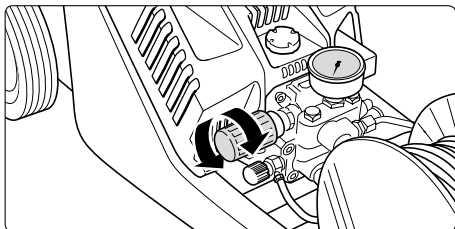
11. Connect to circuit.

Kränzle 2160 TS / TS T: 230 Volt, 50 Hz.

Kränzle 2195 TS / TS T: 230 Volt, 50 Hz.

Kränzle 2175 TS / TS T: 400 Volt, 50 Hz.

The socket must be protected with a 16A delay action fuse on the mains side.



12. Steplessly adjust operating pressure with handwheel. The maximum pressure is adjusted ex work.



13. Ventilation of the machine: Pull and release the trigger several times.

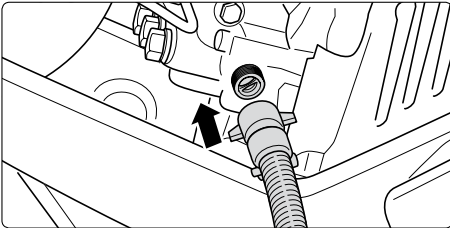
Switch on high-pressure cleaner with opened spray gun. Start cleaning task.

Direct suction

Due to the suction capacity of its pump (up to 2.5 m suction height, max. hose length 3 m) this high-pressure cleaner can suck in water for cleaning purposes from separate containers or ponds.

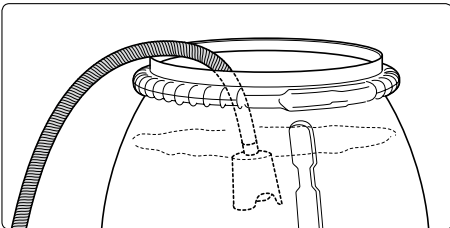


Prior to starting the first suction the pump resp. the suction hose has to be filled with water!

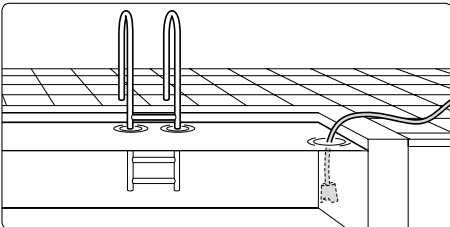


1. Mount suction hose with suction filter (Kränzle accessories No. 15.038 3). When using other hoses the inner cross section of the hose must be at least $3/4'' = 16 \text{ mm}$.

2. Fill suction hose with water.



3. Put filled suction hose into the container and start the cleaning job.



**Use clean water only!
Never suck in water containing chlorine.**

 **Note**

Depending on the water quality it may occur after a prolonged standstill that the valves get sticky. Consequently the machine cannot properly suck in water from a container.

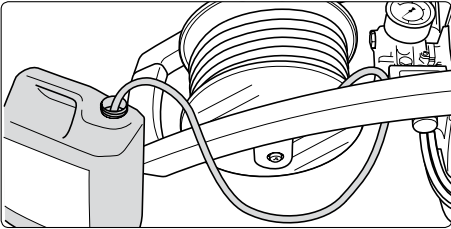
In this case connect a hose with pressurized water to the pump inlet. Having started the machine the pressurized water opens the valves and the machine resumes sucking in water from the container. Now you can carry on with your cleaning task as usual.

18 Suction of detergents

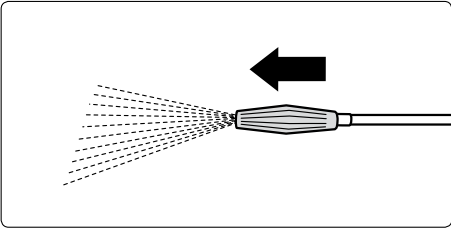
■ with detergent supply:

For the Kränzle 2160 TS / TS T, 2195 TS / TS T and 2175 TS / TS T a built-in injector provides the facility to suck in detergents.

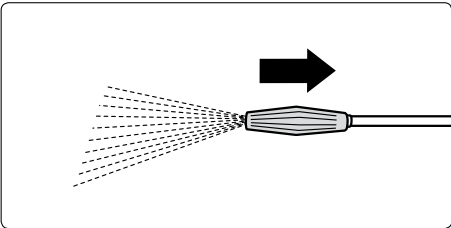
By pushing the Vario-Jet nozzle to the front the machine is adjusted to low pressure and a vacuum is built up in the injector. Thus the detergent can be sucked in via the connected suction hose with filter.



1. Place chemicals filter into container with cleansing agent.



2. To reach the low pressure push Vario nozzle to the front so that the injector can suck in the cleansing agent.



3. The chemicals supply is automatically stopped when closing the Vario nozzle by pushing it backwards. Let cleansing agent take effect and then spray off with a high-pressure jet.



The pH value neutral 7-9 is prescribed for the detergents. Only use detergents suitable for high-pressure cleaners. Observe specifications of detergent manufacturer! e.g.: protective equipment, rules for waste water treatment etc.

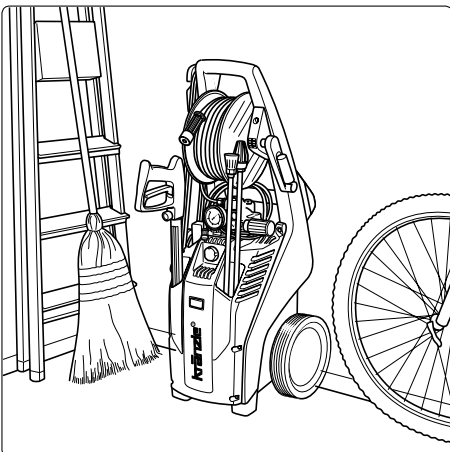


Never suck in liquids containing solvents like varnish solvents, petrol, oil or similar liquid! Observe specifications of detergent manufacturers! Seals inside the appliance are not resistant against solvents! The spray mist of solvents is highly inflammable, explosive and poisonous.

To shut down the pump

1. Switch off the machine
2. Cut off the water supply
3. Open the spray gun briefly until the pressure is released
4. Apply the safety catch on the spray gun
5. Remove the water hose and spray gun
6. Drain the pump: switch on the motor for approx. 20 seconds
7. Pull the plug from the socket
8. Clean HP hose and wind up
9. Clean power cable and wind up
10. Clean water filter
11. Winter: store the pump in rooms above 0°C

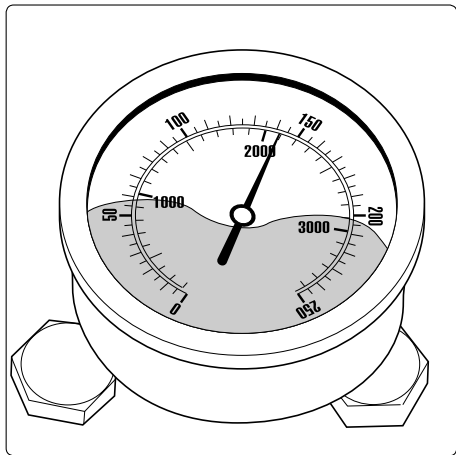
■ Store in a place-saving manner



Due to their compact and space saving design these Kränzle-2000 cleaners can be stored practically anywhere.

20 Small repairs - do it yourself!

■ No water from the nozzle but the gauge shows full pressure:
Most likely the nozzle is blocked.



The pressure gauge shows full pressure, but from the nozzle comes only little water or no water at all.

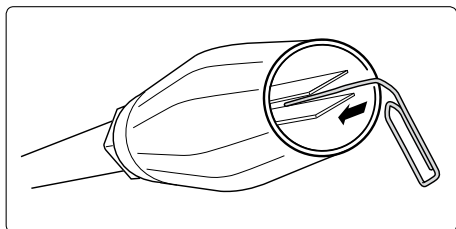
(Inside the pressure gauge is no water but a filling with glycol to damp the vibration of the pointer.)

Switch off the cleaner. Pull plug from the socket. Operate gun several times to decrease the pressure.

First unscrew gun and lance, then rinse hose from any residues.

Check water inlet filter for soiling.

If the problem still exists, take wire (paper clip) and push through nozzle opening.

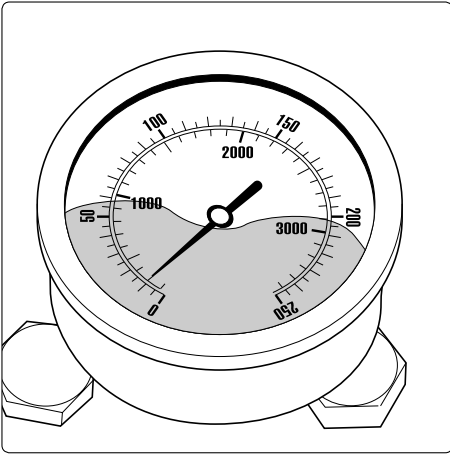


If this procedure is not successful, the nozzle has to be dismantled and cleaned or even replaced, if necessary.



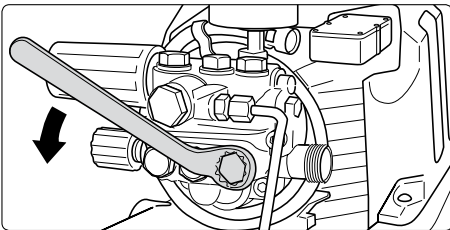
CAUTION! Pull plug from socket prior to starting any repair work!

■ **Pressure gauge shows little pressure, the water from the nozzle comes in squirts: Most likely the valves are soiled or sticky.**

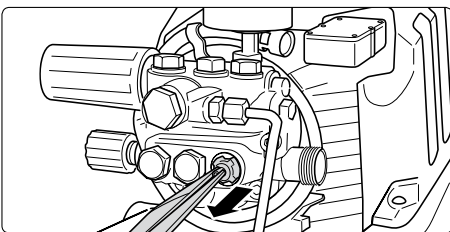


The pressure gauge shows little pressure despite fully turned up pressure regulation. The water from the lance comes in squirts. The HP hose vibrates.

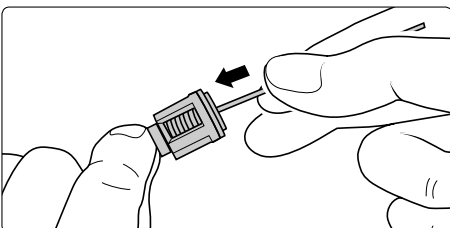
(Inside the pressure gauge is no water but a filling with glycol to damp the vibration of the pointer.)



Unscrew all 6 valves, one after the other (hexagonal brass screws, 3 in a row, vertically and horizontally)



Take out valve body (with green or red plastic coating) and O-ring by means of needle nose pliers. Check O-ring for damage. In case of a damage the O-ring has to be replaced.

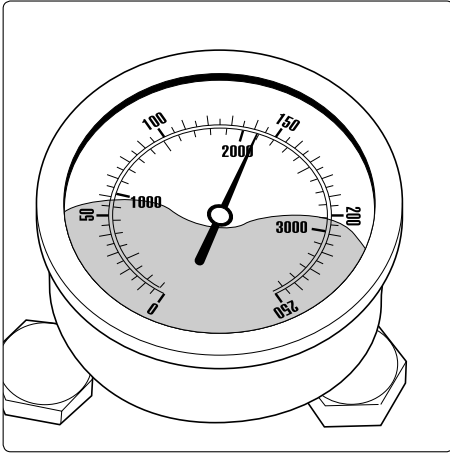


Take a wire (paper clip) and clean valves under running water. Also clean valve seat inside the pump.

Do not forget the O-ring during reassembly!

22 Small repairs - do it yourself!

■ The pressure gauge shows full pressure although the gun has been closed. The pressure switch valve switches constantly.

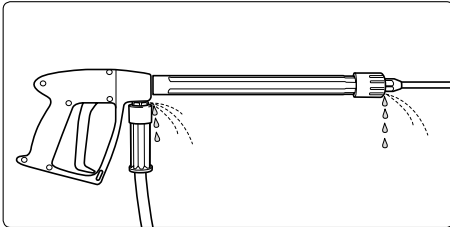
**Possible cause no.1: Leakage**

Having closed the gun, the HP cleaner must shut down and the pressure gauge must show „0“ bar.

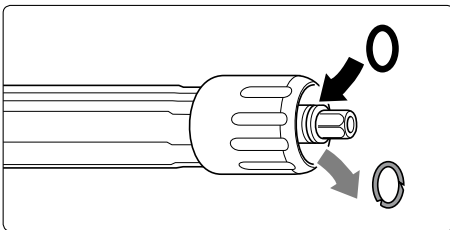
If the pressure gauge still shows full pressure and the motor constantly switches on and off, the possible reason for this can be a leakage of the pump, the HP hose or the lance.

Proceeding:

Check the connections from the HP cleaner to the HP hose, from the hose to the gun and also the connection between lance and gun for tightness.



Switch off the cleaner. Shortly pull the trigger of the gun to decrease the pressure.



Unscrew HP hose, gun and lance and check the O-rings.

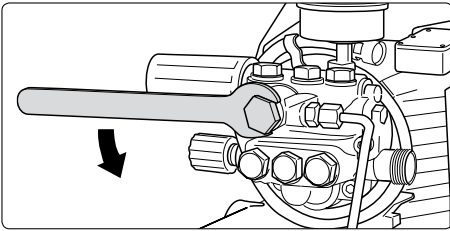
If the O-rings are damaged they have to be replaced.



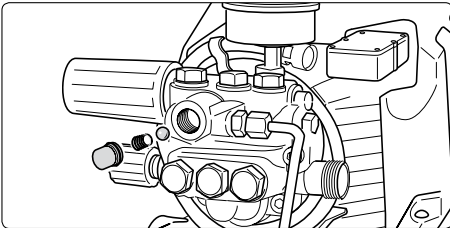
Caution! In case of a leakage there is no guarantee for possible consequential damages.

■ The pressure gauge shows full pressure although the gun has been closed. The pressure switch valve switches constantly.

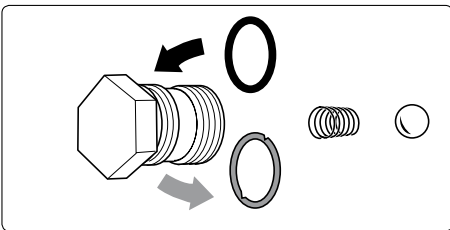
Possible cause no. 2: The return body is soiled or the sealing ring on the return body is defective.



Unscrew pump outlet.



Take out check ball and check for soiling or damage of ball or stainless steel seat inside the pump housing.



Replace non-return valve if necessary.



Caution ! There is no guarantee if the pump is damaged by defective O-rings due to air induction or lack of water (cavitation).

24 Inspection report for HP cleaners

HP cleaners for industrial use have to be checked by an expert every 12 months! Inspection report on annually carried out Labour Safety Inspection (UVV) according to the Guidelines for Liquid Spray Equipment. (This inspection sheet serves as proof for the completion of the retest and must be kept carefully!) Kränzle test seals: Order no. UVV200106

Owner: Type:.....
 Address: Serial no.:
 Rep. order no.:

Scope of inspection	o.k.	yes	no	repaired
Type plate (on hand)				
Operating manual (on hand)				
Protective covering, -device				
Pressure line (tightness)				
Pressure gauge (function)				
Float valve (tightness)				
Spraying device (marking)				
HP-hose / connector (damage, marking)				
Safety valve opens at 10 % / 20 % exceeding of operating pr.				
Power cable (damage)				
Protective conductor (connected)				
On / Off switch				
Used chemicals				
Allowed chemicals				

Inspection data	determined value	set value
High-prsure nozzle		
Operating pressure.....bar		
Switch off pressure.....bar		
Conductor resist. not exceeded / value		
Insulation		
Leakage current		
Gun locked		

Inspection result (tick)

- The appliance was checked by an expert according to the Guidelines for Liquid Spray Equipment, the defects found have been rectified so that the Labour Safety can be confirmed.
- The appliance was checked by an expert according to the Guidelines for Liquid Spray Equipment. The Labour Safety cannot be confirmed unless the defects found are rectified by repair or replacement of the faulty parts

The next retest according to the Guidelines for Liquid Spray Equipment has to be carried out by: Month Year

Place, date..... Signature

Inspection report for HP cleaners

HP cleaners for industrial use have to be checked by an expert every 12 months! Inspection report on annually carried out Labour Safety Inspection (UVV) according to the Guidelines for Liquid Spray Equipment. (This inspection sheet serves as proof for the completion of the retest and must be kept carefully!) Kränzle test seals: Order no. UVV200106

Owner: Type:.....
 Address: Serial no.:
 Rep. order no.:

Scope of inspection	o.k.	yes	no	repaired
Type plate (on hand)				
Operating manual (on hand)				
Protective covering, -device				
Pressure line (tightness)				
Pressure gauge (function)				
Float valve (tightness)				
Spraying device (marking)				
HP-hose / connector (damage, marking)				
Safety valve opens at 10 % / 20 % exceeding of operating pr.				
Power cable (damage)				
Protective conductor (connected)				
On / Off switch				
Used chemicals				
Allowed chemicals				

Inspection data	determined value	set value
High-prsure nozzle		
Operating pressure.....bar		
Switch off pressure.....bar		
Conductor reist. not exceeded / value		
Insulation		
Leakage current		
Gun locked		

Inspection result (tick)

- The appliance was checked by an expert according to the Guidelines for Liquid Spray Equipment, the defects found have been rectified so that the Labour Safety can be confirmed.
- The appliance was checked by an expert according to the Guidelines for Liquid Spray Equipment. The Labour Safety cannot be confirmed unless the defects found are rectified by repair or replacement of the faulty parts

The next retest according to the Guidelines for Liquid Spray Equipment has to be carried out by: Month Year

Place, date..... Signature

26 EC declaration of conformity

Hereby we declare that:

**Kränzle 2160 TS / TS T,
Kränzle 2195 TS / TS T,
Kränzle 2175 TS / TS T,**

technical specifications available from:

**Manfred Bauer, Fa. Josef Kränzle
Rudolf-Diesel-Str. 20, 89257 Illertissen**

comply with the following guidelines
and their amendments for high-pressure
cleaners:

**machinery directive 2006/42/EEC,
EMC-directive 2004/108 EEC,
noise directive 2005/88/EC, Art. 13,
HP water spraying machines
annex 3, part B, chapter 27**

Sound level measured:

**Kränzle 2160 TS / TS T: 87 dB (A)
Kränzle 2195 TS / TS T: 87 dB (A)
Kränzle 2175 TS / TS T: 89 dB (A)**

Sound level guaranteed:

**Kränzle 2160 TS / TS T: 89 dB (A)
Kränzle 2195 TS / TS T: 89 dB (A)
Kränzle 2175 TS / TS T: 91 dB (A)**

Applied conformity evaluation procedures

annex V, noise directive 2005/88/EC

Applied specifications and standards:

**EN 60 335-2-79 :2004
EN 55 014-1 :2006
EN 61 000-3-2 :2006
EN 61 000-3-3 :2008**

I. Kränzle GmbH
Elpke 97 D - 33605 Bielefeld

Bielefeld, 21.12.2009



Droitsch
(Managing director)

Guarantee

■ The guarantee is only valid for material and manufacturing errors. Wearing does not fall within this guarantee.

The instructions in our operating manual must be complied with.. The operating instructions form part of the guarantee. The Guarantee is void if other parts are used than genuine Kränzle accessory parts or genuine Kränzle spare parts.

For high-pressure cleaners sold to the user the guarantee period is **24 month**.
For high-pressure cleaners sold for industrial use the guarantee period is **12 month**.

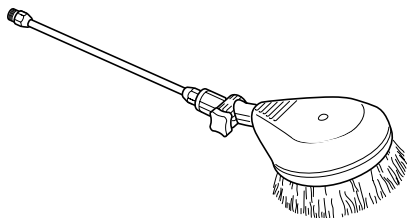
In the case of a guarantee please contact your dealer or authorized seller delivering accessories and your purchase receipt. You can find them in the internet under

www.kraenzle.com.

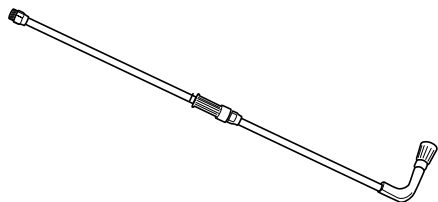
The guarantee is also void if the machine is used with exceeding the temperature and speed limits, a voltage below the required rating, with less than the required amount of water or with dirty water.

Pressure gauge, nozzle, valves, sleeves, high pressure hose and spray equipment are wear parts and are not covered by the warranty.

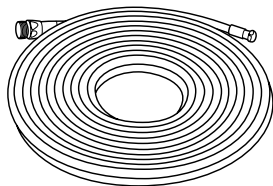
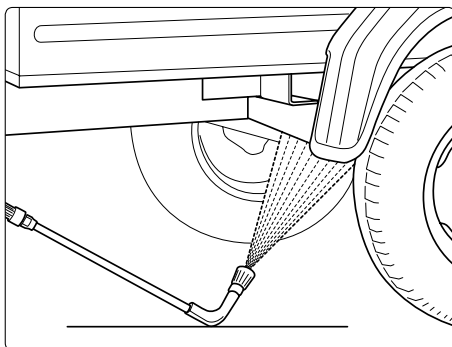
28 Versatile due to Kränzle accessories



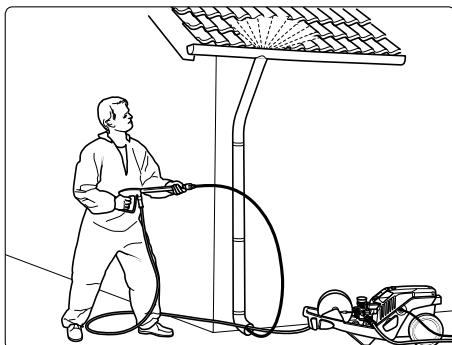
Rotating washing brush with 400 mm extension, Order no. 41 050 1

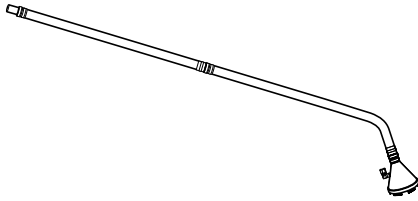


Underbody lance with 800 mm extension, Order no. 41 075

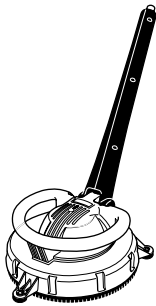
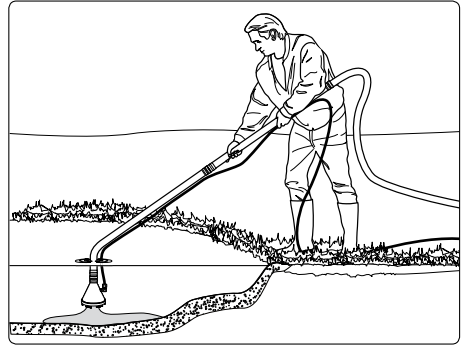


**Pipe cleaning hose with nozzle,
10 m - Order no. 41 058 1
20 m - Order no. 41 058 2
25 m - Order no. 41 058 3
30 m - Order no. 41 058 4**

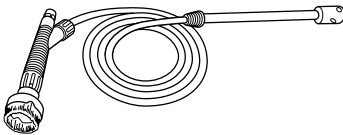




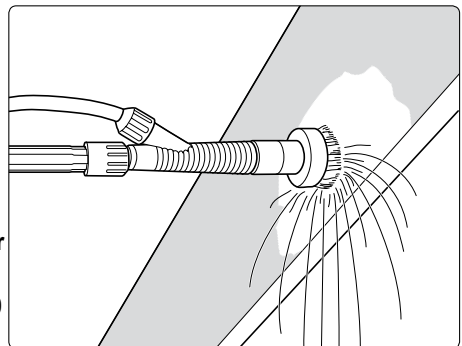
Sludge sucker, stainless steel,
Order no. 41 801
Sludge sucker with 3 m suction hose,
Order no. 41 104



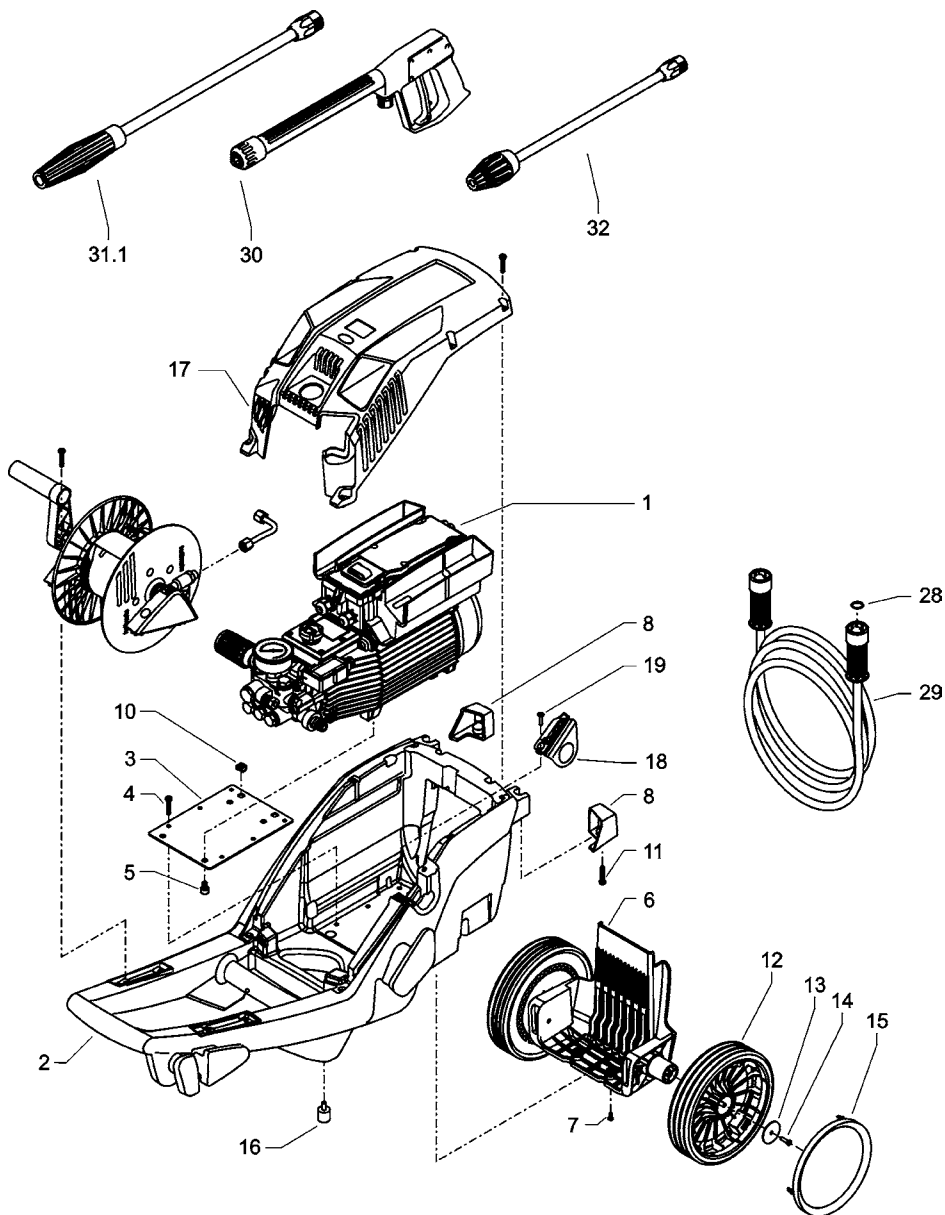
Floor cleaner round cleaner UFO
Order no. 41.850



Sand blasting set compl. up to 12 l/min, 150 bar
Order no. 41 068 1
Sand blasting set compl. up to bis 19 l/min, 250 bar
Order no. 41 068

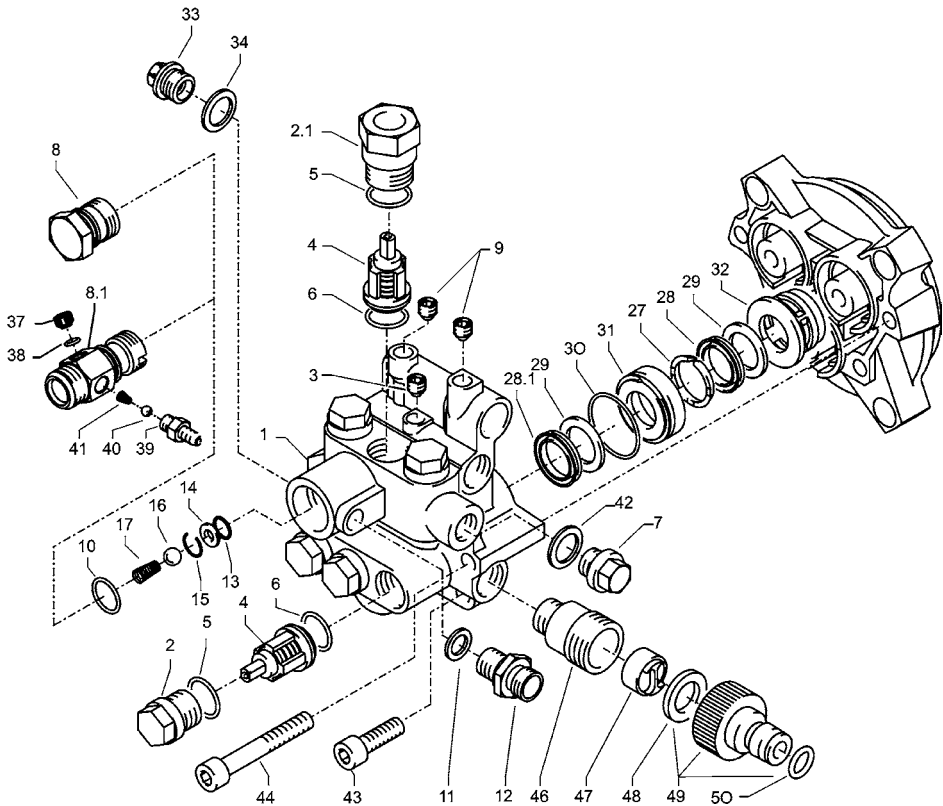


30 Spare parts list Kränzle 2160 / 2195 / 2175



Complete assembly

No	Description	Qty.	Ord.-No
1	Motor-Pumpen-Einheit mit Elektrik		
	K 2160 TS	1	48.060
	K 2160 TS T	1	48.061
	K 2195 TS	1	48.062
	K 2195 TS T	1	48.063
	K 2175 TS	1	48.064
	K 2175 TS T	1	48.065
1.1	Motor-Pumpen-Einheit ohne Elektrik		
	K 2160 TS	1	48.060 1
	K 2160 TS T	1	48.061 1
	K 2195 TS	1	48.062 1
	K 2195 TS T	1	48.063 1
	K 2175 TS	1	48.064 1
	K 2175 TS T	1	48.065 1
2	Fahrgestell	1	48.000
3	Versteifungsblech	1	48.010
4	Schraube 6,0 x 30	6	43.423
5	Schraube M 8 x 12	4	40.122
6	Achshalter	1	48.003
7	Schraube M 6 x 40	2	48.012
8	Standfuß links + rechts	1	48.005
10	Käfigmutter M6	2	48.011
11	Schraube 5,0 x 30	2	43.418
12	Rad d210mm	2	44.538
13	Scheibe 40 x 6 x 1,5 (Stahl)	2	45.216 7
14	Kunststoffsenskschraube 5,0 x 20	2	45.421 1
15	Radkappe	2	46.011
16	Gummipuffer 20 x 25	2	48.013
17.1	Frontplatte „K 2160 TS“	1	48.002 1
17.2	Frontplatte „K 2160 TS T“	1	48.002 2
17.3	Frontplatte „K 2195 TS“	1	48.002 3
17.4	Frontplatte „K 2195 TS T“	1	48.002 4
17.5	Frontplatte „K 2175 TS“	1	48.002 5
17.6	Frontplatte „K 2175 TS T“	1	48.002 6
18	Knickschutz	1	48.004
19	Schraube 5,0 x 14	2	43.426
28	O-Ring 9,3 x 2,4	2	13.273
29	Hochdruckschlauch NW 6 10 m (TS-Geräte)	1	43.416
30	Midi -Pistole mit Verlängerung	1	12.160
31.1	Vario-Jet 03 mit Lanze 400 mm für K 2195 TS / TST	1	41.156 2
31.2	Vario-Jet 042 mit Lanze 400 mm für K 2160 TS / TST + K 2175 TS / TST	1	41.156
32.1	Schmutz-Killer 03 mit Lanze 400 mm für K 2195 TS / TST	1	41.073 8
32.2	Schmutz-Killer 042 mit Lanze 400 mm für K 2160 TS / TST + K 2175 TS / TST	1	41.571-042

32 Spare parts list
Kränzle 2160 / 2175

Valve housing 18mm

No	Description	Qty.	Ord.-No
1	Ventilgehäuse	1	42.160 3
2	Ventilstopfen	5	41.714
2.1	Ventilstopfen mit R1/4" IG	1	42.102
3	Dichtstopfen M 10 x 1	1	43.043
4	Ventile (grün) für APG-Pumpe	6	41.715 1
5	O-Ring 16 x 2	6	13.150
6	O-Ring 15 x 2	6	41.716
7	Dichtstopfen R1/4" mit Bund	1	42.103
8	Ausgangsteil (TST)	1	40.522
8.1	Ausgangsteil (TS)	1	40.522 2
9	Dichtstopfen M 8 x 1	2	13.158
10	O-Ring 18 x 2	1	43.446
11	Aluminium - Dichtring	3	13.275
12	Verschraubung Ermeto R1/4" x 8	1	41.042
13	O-Ring 11 x 1,5	1	12.256
14	Edelstahlsitz Ø 7	1	14.118
15	Sprengring	1	12.258
16	Edelstahlkugel Ø10	1	12.122
17	Rückschlagfeder „K“	1	14.120 1
27	Druckring	3	41.018
28	Manschette 18 x 26 x 4/2	3	41.013
28.1	Gewebemanschette 18 x 26 x 4/2	3	41.013 1
29	Backring 18 x 26	6	41.014
30	O-Ring 28,3 x 1,78	3	40.026
31	Leckagering 18 mm	3	41.066
32	Zwischenring 18 mm	3	41.015 2
33	Verschlussstopfen R3/8"	1	14.113
34	Kupfering 17 x 22 x 1,5	1	40.019
37	Verschlusschraube M10x1	1	13.385
38	O-Ring 6x1,5	2	13.386
39	Saugzapfen Schlauchanschluss	1	13.236
40	Edelstahlkugel 5,5 mm	1	13.238
41	Edelstahlfeder	1	13.239
42	Kupfering 14 x 20 x 1,5	1	42.104
43	Innensechskantschraube M 8 x 30	2	41.036 1
44	Innensechskantschraube M 8 x 55	2	41.017 1
46	Sauganschluß	1	41.016
47	Wasserfilter	1	41.046 2
48	Gummi Dichtring	1	41.047 1
49	Steckkupplung	1	41.047 4
50	O-Ring	1	41.047 3

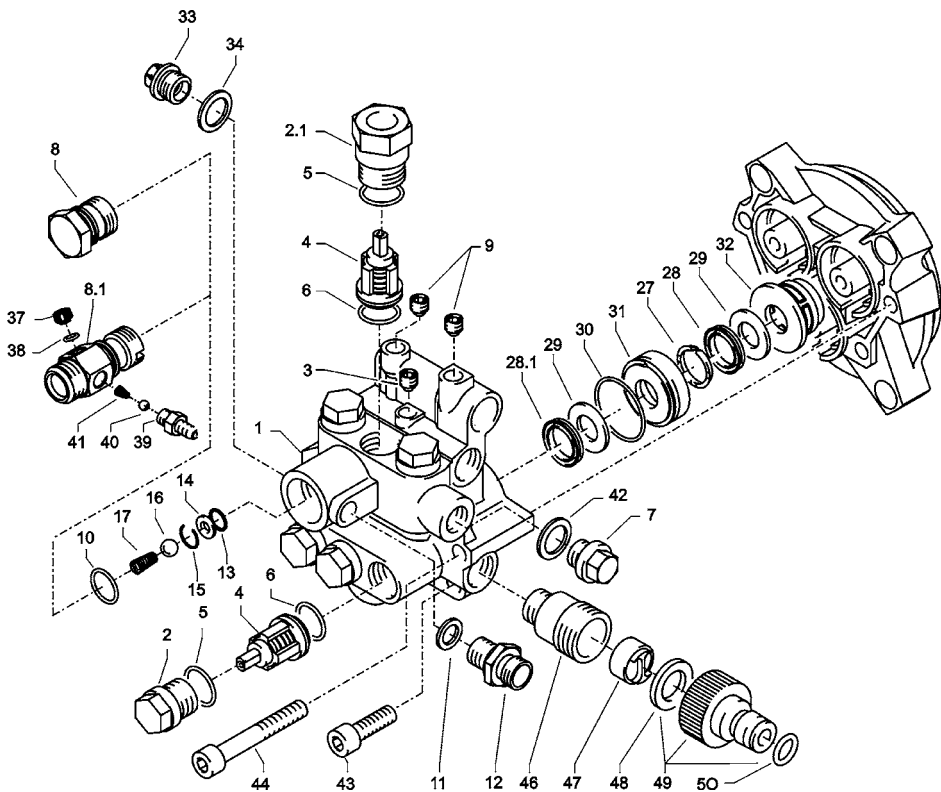
Reparatur-Sätze:

Reparatursatz Manschetten 18 mm **41.049 1**

bestehend aus je
3 x Pos. 13; 6 x Pos. 14; 3 x Pos. 15; 3 x Pos. 23; 3 x Pos. 18

Reparatursatz Ventile für APG-Pumpe **41.748 1**

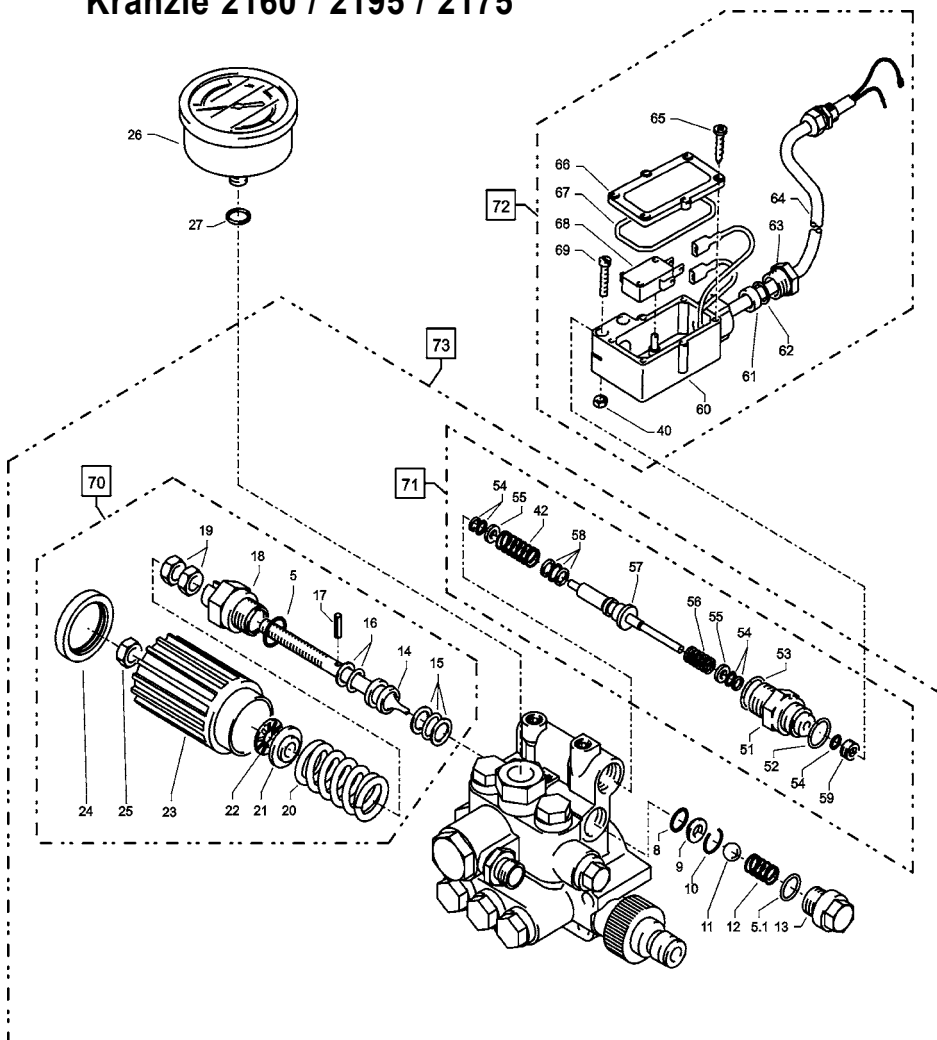
bestehend aus je 6 x Pos. 4; 6 x Pos. 5; 6 x Pos. 6

34 Spare parts list
Kränzle 2195

Valve housing 15mm

No	Description	Qty.	Ord.-No
1	Ventilgehäuse	1	42.163 3
2	Ventilstopfen	5	41.714
2.1	Ventilstopfen mit R1/4" IG	1	42.102
3	Dichtstopfen M 10 x 1	1	43.043
4	Ventile (grün) für APG-Pumpe	6	41.715 1
5	O-Ring 16 x 2	6	13.150
6	O-Ring 15 x 2	6	41.716
7	Dichtstopfen R1/4" mit Bund	1	42.103
8	Ausgangsteil (TST)	1	40.522
8.1	Ausgangsteil (TS)	1	40.522 2
9	Dichtstopfen M 8 x 1	2	13.158
10	O-Ring 18 x 2	1	43.446
11	Aluminium - Dichtring	3	13.275
12	Verschraubung Ermeto R1/4" x 8	1	41.042
13	O-Ring 11 x 1,5	1	12.256
14	Edelstahlsitz Ø 7	1	14.118
15	Sprengring	1	13.147
15	Edelstahlkugel Ø10	1	12.122
17	Rückschlagfeder „K“	1	14.120 1
27	Stützring rot 15mm	3	42.913
28	Manschette weich 15mm	3	42.902
28.1	Manschette Gewebe 15mm	3	42.902 1
29	Backring 15 x 24	6	42.903
30	O-Ring 28,3 x 1,78	3	40.026
31	Leckagering 15 mm	3	42.905
32	Zwischenring 15 mm	3	42.904 1
33	Verschlussstopfen R3/8"	1	14.113
34	Kupfering 17 x 22 x 1,5	1	40.019
37	Verschlusschraube M10x1	1	13.385
38	O-Ring 6x1,5	2	13.386
39	Saugzapfen Schlauchanschluss	1	13.236
40	Edelstahlkugel 5,5 mm	1	13.238
41	Edelstahlfeder	1	13.239
42	Kupfering 14 x 20 x 1,5	1	42.104
43	Innensechskantschraube M 8 x 30	2	41.036 1
44	Innensechskantschraube M 8 x 55	2	41.017 1
46	Sauganschluß	1	41.016
47	Wasserfilter	1	41.046 2
48	Gummi Dichtring	1	41.047 1
49	Steckkupplung	1	41.047 4
50	O-Ring	1	41.047 3
Reparatur-Sätze:			
Reparatursatz Manschetten 15 mm			42.911
bestehend aus je			
3 x Pos. 13; 6 x Pos. 14; 3 x Pos. 15; 3 x Pos. 23; 3 x Pos. 18			
Reparatursatz Ventile für APG-Pumpe			41.748 1
bestehend aus je 6 x Pos. 4; 6 x Pos. 5; 6 x Pos. 6			

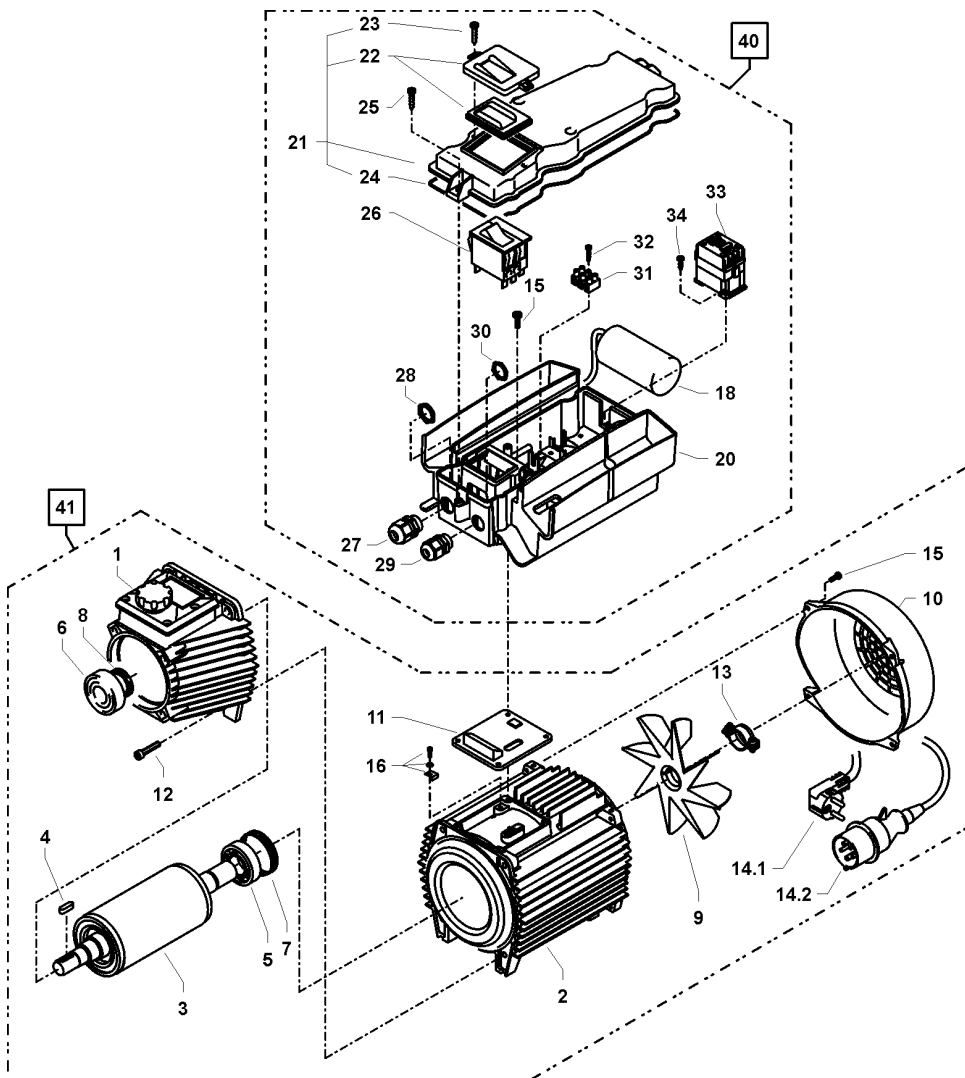
36 Spare parts list Kränzle 2160 / 2195 / 2175



No	Description	Qty.	Ord.-No
70	Steuerkolben kpl. mit Handrad	40.490	
71	Rep.- Satz Druckschaltermechanik	15.009 3	
72	Druckschalter kpl.	41.300 6	
73.1	Ventilgehäuse kpl. ohne Manometer (K2160 TS, K2175 TS)	48.050	
73.2	Ventilgehäuse kpl. ohne Manometer (K2160 TST, K2175 TST)	48.050 1	
73.3	Ventilgehäuse kpl. ohne Manometer (K2195 TS)	48.051	
73.4	Ventilgehäuse kpl. ohne Manometer (K2195 TST)	48.051 1	

Unloader valve and pressure switch

No	Description	Qty.	Ord.-No
5	O-Ring 16 x 2	1	13.150
5.1	O-Ring 13,94 x 2,62	1	42.167
8	O-Ring 11 x 1,44	1	12.256
9	Edelstahlsitz	1	14.118
10	Sicherungsring	1	13.147
11	Edelstahlkugel	1	13.148
12	Edelstahlfeder	1	14.119
13	Verschlussschraube	1	14.113
14	Steuerkolben	1	14.134
15	Parbaks 16 mm	1	13.159
16	Parbaks 8 mm	1	14.123
17	Spanstift	1	14.148
18	Kolbenführung spezial	1	42.105
19	Kontermutter M 8 x 1	2	14.144
20	Ventilfeder schwarz	1	14.125
21	Federdruckscheibe	1	14.126
22	Nadellager	1	14.146
23	Handrad AM-Pumpe	1	40.457
24	Kappe Handrad AM-Pumpe	1	40.458
25	Elastic-Stop-Mutter M 8 x 1	1	14.152
26	Manometer 0-250 Bar	1	15.039
27	Aluminium-Dichtring	2	13.275
40	Sechskant - Mutter M 4	2	12.138
42	Druckfeder 1 x 8,6 x 30	1	40.520
50	O-Ring 3,3 x 2,4	1	12.136
51	Führungsteil Steuerstößel	1	15.009 1
52	O-Ring 13 x 2,6	1	15.017
53	O-Ring 14 x 2	1	43.445
54	Parbaks 4mm	2	12.136 2
55	Stützscheibe	2	15.015 1
56	Edelstahlfeder	1	15.016
57	Steuerstößel	1	15.010 2
58	Parbaks 7mm	1	15.013
59	Stopfen M 10 x 1 (durchgebohrt)	1	13.385 1
60	Gehäuse Elektroschalter	1	15.007
61	Gummimanschette PG 9	1	15.020
62	Scheibe PG 9	1	15.021
63	Verschraubung PG 9	1	15.022
64	Kabel 2x 1,5 mm ²	1	15.019 1
65	Blechschraube 2,8 x 16	6	15.024
66	Deckel Elektroschalter	1	15.008
67	O-Ring 44 x 2,5	1	15.023
68	Mikroschalter	1	15.018
69	Zylinderschraube M 4 x 22	2	15.025

38 Spare parts list
Kränzle 2160 / 2195 / 2175

Motor

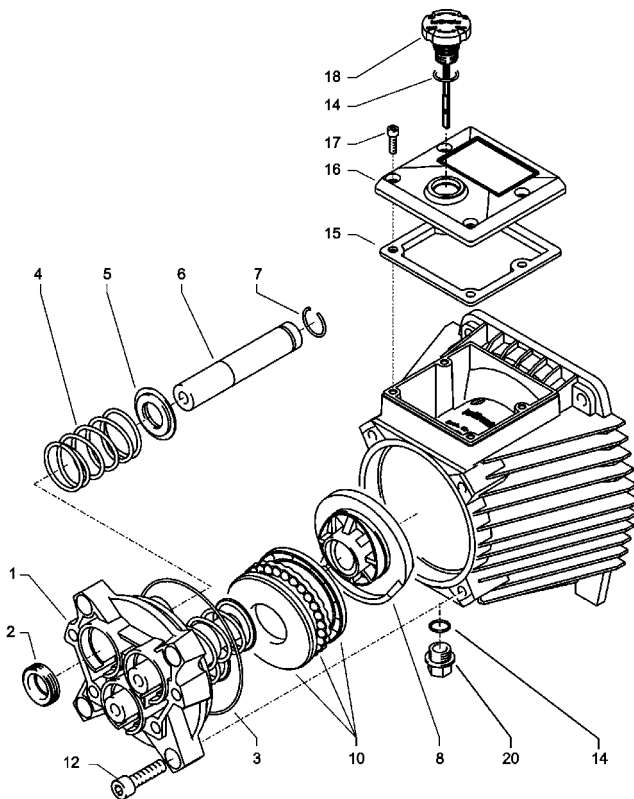
No	Description	Qty.	Ord.-No
1	Ölgehäuse für AP mit Deckel und Dichtung	1	46.530 2
3	Rotor mit Motorwelle	1	43.316
4	Passfeder 6 x 6 x 20	1	41.483 1
5	Motor-Lager B-Seite 6205 - ZZ	1	43.317
6	Motor-Lager Schulterlager 7304	1	41.027
7	Toleranzhülse	1	43.330 1
8	Öldichtung 25 x 35 x 7	1	41.024
9	Lüfterrad BG 90	1	43.319
10	Lüfterhaube BG 90	1	43.320
11	Flachdichtung	1	43.030
12	Innensechskantschraube M 6 x 30	4	43.037
13	Schelle für Lüfterrad mit Schrauben	1	43.454
15	Schraube M 4 x 12	10	41.489
16	Erdungsschraube kpl.	1	43.038
20	Schaltkasten	1	48.001
21	Deckel für Schaltkasten	1	44.512
22	Klemmrahmen mit Schalterabdichtung	1	43.453
23	Blechschaube 3,5 x 9,5	2	41.088
24	Dichtung für Deckel	1	44.522
25	Schraube 5,0 x 20	4	43.018
27	Kabelverschraubung PG 13,5	1	40.539
28	Gegenmutter für PG 13,5	1	44.253
29	Kabelverschraubung PG 11	1	41.419
30	Gegenmutter für PG 11	1	44.521
31	Lüsterklemme 3-polig	1	43.326
32	Blechschaube 2,9 x 16	1	43.036

Kränzle 2160 TS / TST, 2195 TS / TST:

2.1	Motorgehäuse mit Stator Wechselstrom	1	43.826
14.1	Kabel mit Stecker (Schuko)	1	41.092
18	Kondensator 70 µF	1	43.322
26.1	Schalter mit 14,5 A	1	41.111 6
40.1	Schaltkasten Wechselstrom kpl. Pos. 20 – 32		48.052
41.1	Motor Wechselstrom kpl. ohne Schalter Pos. 1 - 16		48.054

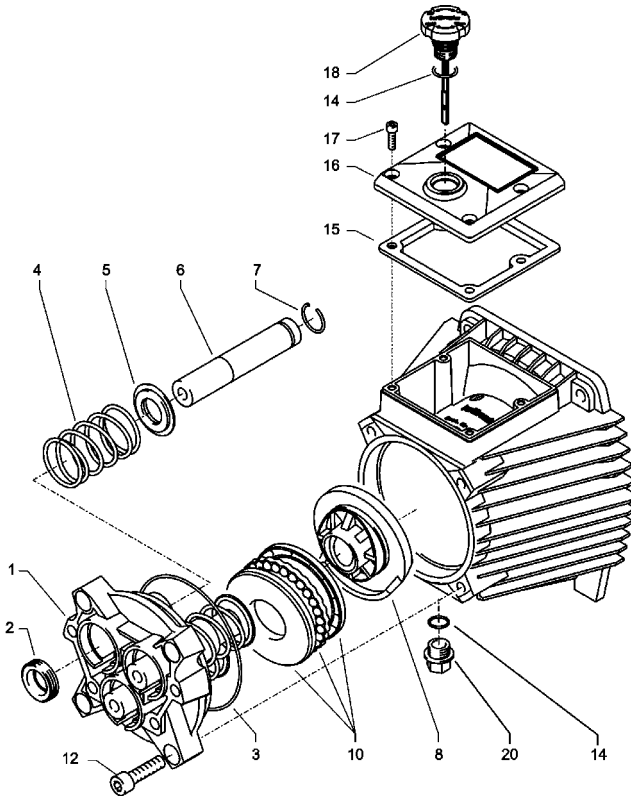
Kränzle 2175 TS / TST:

2.2	Motorgehäuse mit Stator Drehstrom	1	43.827
14.2	Kabel mit Stecker (CE-KON)	1	43.828
21.2	Schraube 3,5 x 20	1	43.415
26.2	Schalter mit 11 A	1	41.751
33	Schütz 3x400V 50/60 Hz	1	48.016
34	Schraube 3,9 x 13	3	41.078
40.2	Schaltkasten Drehstrom kpl. Pos. 17, 19 – 31		48.053
41.2	Motor Drehstrom kpl. ohne Schalter Pos. 1 - 16		48.055



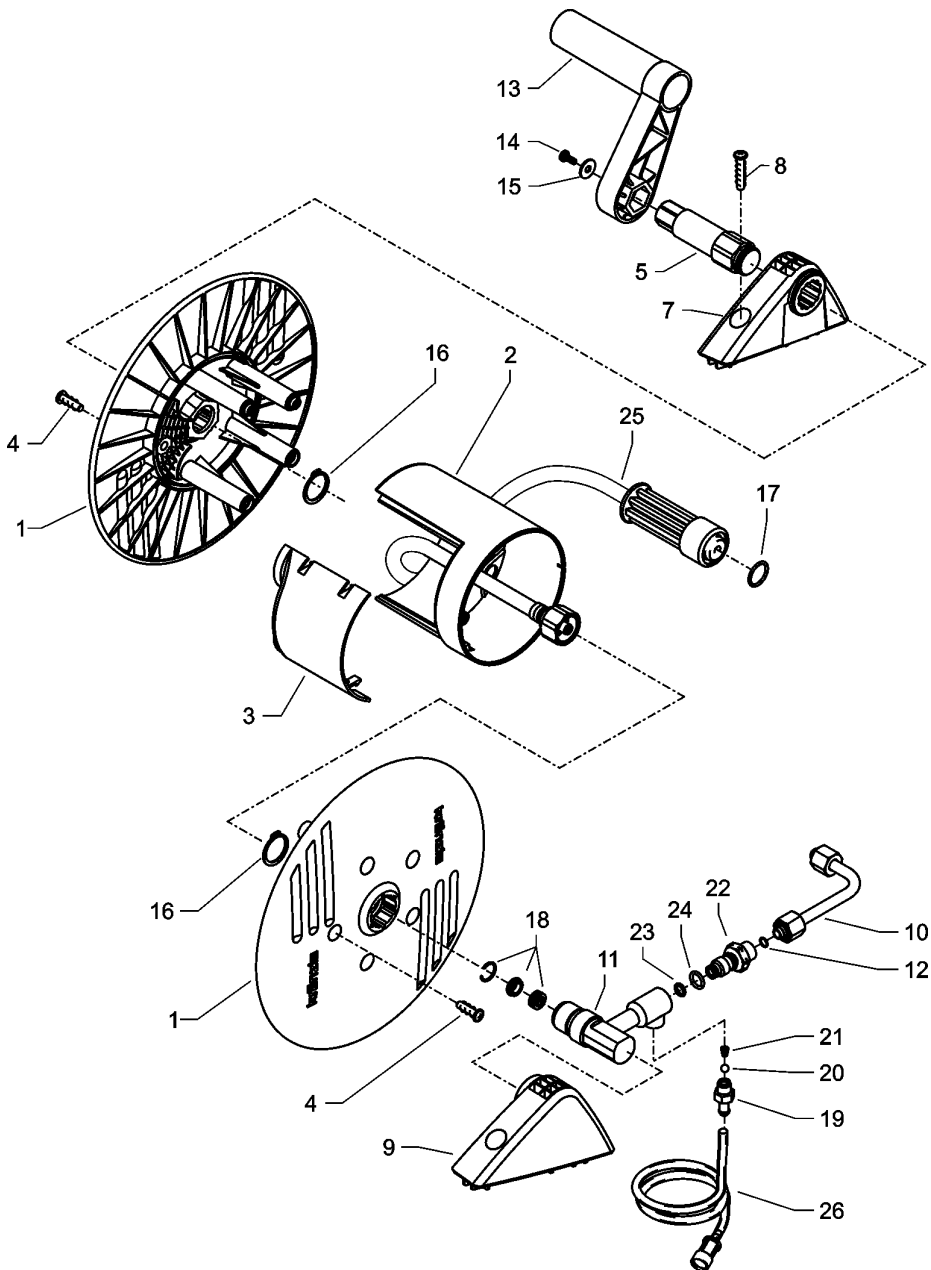
No	Description	Qty.	Ord.-No
1	Gehäuseplatte für 18 mm Plunger	1	41.020 2
2	Öldichtung 18 x 28 x 7	3	41.031
3	O-Ring Viton 88 x 2	1	41.021 1
4	Plungerfeder	3	41.033
5	Federdruckscheibe 18 mm	3	41.034
6	Plunger 18 mm	3	41.032 1
7	Sprengring 18 mm	3	41.035
8	Taumelscheibe 12,0° (K2160 TS / TST)	1	41.028-12,0
8.1	Taumelscheibe 13,0° (K2175 TS / TST)	1	41.028-13,0
10	Axial-Rillenkugellager 3-teilig	1	43.486
12	Innensechskantschraube M 8 x 30	4	41.036 1
14	O-Ring 14 x 2	1	43.445
15	Dichtung für Deckel	1	46.531
16	Deckel für Ölgehäuse	1	46.532
17	Schraube M5x12	4	41.019 4
18	Ölverschlusschraube mit Messstab	1	48.017
20	Ölablassstopfen M18x1,5 mit Magnet	1	48.020

Transmission



No	Description	Qty.	Ord.-No
1	Gehäuseplatte für 15 mm Plunger	1	42.906
2	Öldichtung 15 x 24 x 7	3	42.907
3	O-Ring Viton 88 x 2	1	41.021 1
4	Plungerfeder	3	41.033
5	Federdruckscheibe 15 mm	3	42.909
6	Plunger 15 mm	3	42.908
7	Sprengtring 15 mm	3	42.910
8	Taumscheibe 14,1° (K2195 TS / TST)	1	41.028-14,1
10	Axial-Rillenkugellager 3-teilig	1	43.486
12	Innensechskantschraube M 8 x 30	4	41.036 1
14	O-Ring 14 x 2	2	43.445
15	Dichtung für Deckel	1	46.531
16	Deckel für Ölgehäuse	1	46.532
17	Schraube M5x12	4	41.019 4
18	Ölverschlussschraube mit Messstab	1	48.017
20	Ölablasstopfen M18x1,5 mit Magnet	1	48.020

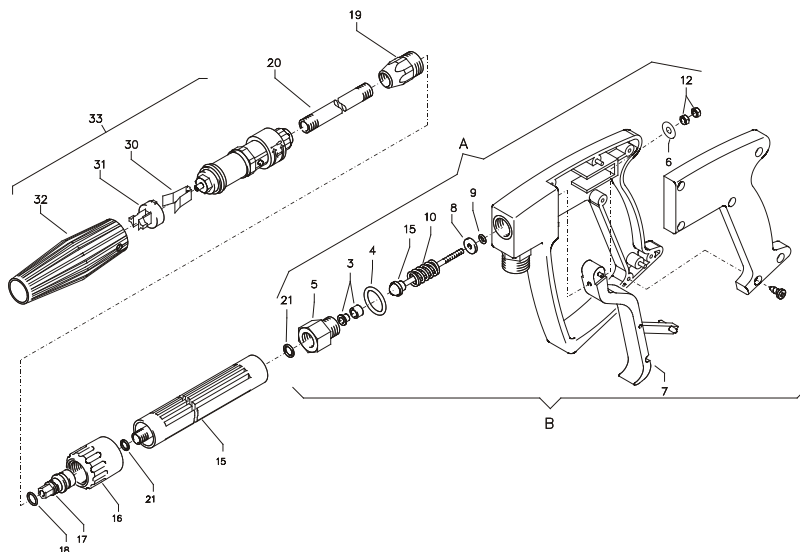
42 Spare parts list Kränzle 2160 / 2195 / 2175



Hose drum

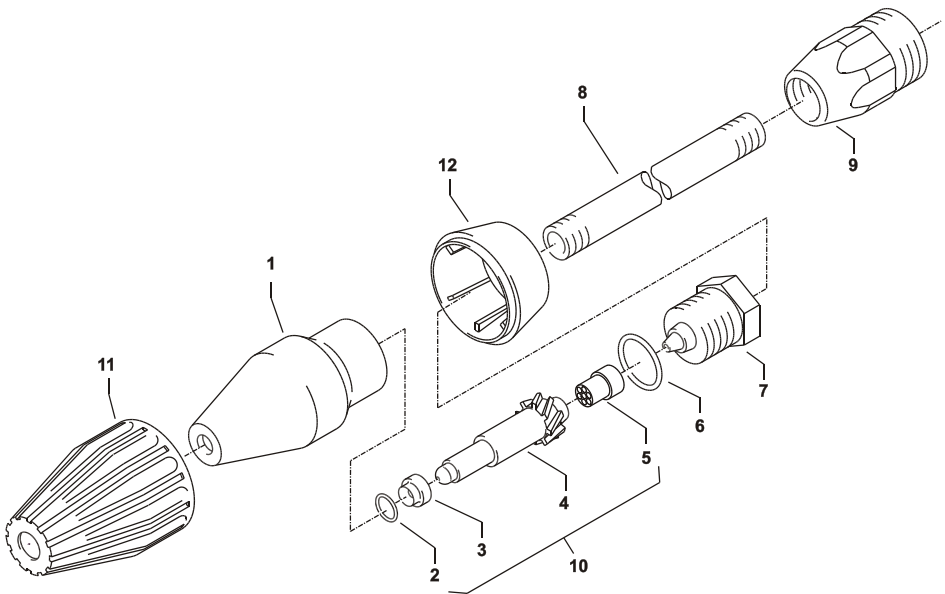
No	Description	Qty.	Ord.-No
1	Seitenschale	2	48.101
2	Trommelteil	1	48.102
3	Knickschutz	1	40.162
4	Kunststoffschraube 5,0 x 20	5	43.018
5	Antriebswelle	1	48.104
7	Lagerklotz links	1	43.810
8	Schraube 6,0 x 30	4	43.423
9	Lagerklotz rechts	1	43.811
10	Verbindungsrohr	1	48.014
11	Wasser-Eingangsteil	1	48.103
12	O-Ring 6 x 0,8	2	40.177
13	Handkurbel	1	40.165
14	Schraube M 5 x 14	1	40.536
15	Scheibe 5,3	1	50.152
16	Wellensicherungsring 22 mm	2	40.117
17	O-Ring 9,3 x 2,4	1	13.273
18	Dichtsatz	1	13.410 1
19	Saugzapfen Schlauchanschluss	1	13.236
20	Edelstahlkugel 5,5 mm	1	13.238
21	Edelstahlfeder	1	13.239
22	Eingangsinjektror	1	40.317
23	O-Ring 10 x 2	1	43.068
24	O-Ring 6,68 x 1,78	1	40.585
25	Hochdruckschlauch 15m NW6	1	48.015
26	Chemikaliensaugschlauch mit Filter	1	15.038
30	Hose drum compl., without HP-hose		48.100

44 Gun 'Midi' with lance

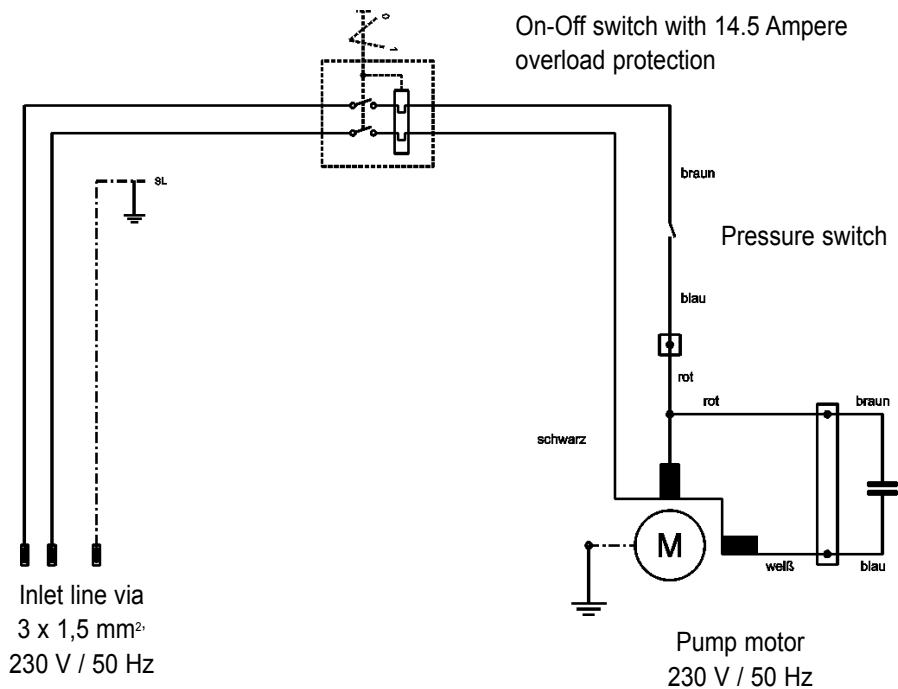


No	Description	Qty.	Ord.-No
5	Rohranschlusssteil R1/4" incl. Pos. 3, 4, 21	1	12.125
6	Scheibe 5,3 DIN9021	1	50.152
7	Abzug-Hebel kpl.	1	12.144 1
15	Rohr kunststoffumspritzt bds. R 1/4" AG	1	15.004 2
16	Überwurfmutter ST 30 M22 x 1,5 IG	1	13.276 1
17	Außen-Sechskant-Nippel R 1/4" IG	1	13.277 1
18	O-Ring 9,3 x 2,4	1	13.273
19	ST 30-Nippel M 22 x 1,5	1	13.363
20	Rohr 400 lang, bds. M12 x 1	1	15.002
21	Aluminium Dichtring	6	13.275 1
30	Klemmstück	1	41.155 2
31	Halterung für Klemmstück	1	41.155 4
32	Kunststoffhülle	1	41.155 1
33	Vario-Jet 03 (K 2195)	1	41.155 9
33.1	Vario-Jet 042 (K 2160, K 2175)	1	41.155 6
A	Rep.-Kit Pos: 3, 4, 5, 8, 9,10, 12, 15, 21		12.158
B	Griff komplett		12.164
	Midi-Pistole kpl.		12.160
	Lanze kpl. mit Vario-Jet 03 (K 2195)		41.156 2
	Lanze kpl. mit Vario-Jet 042 (K 2160, K 2175)		41.156

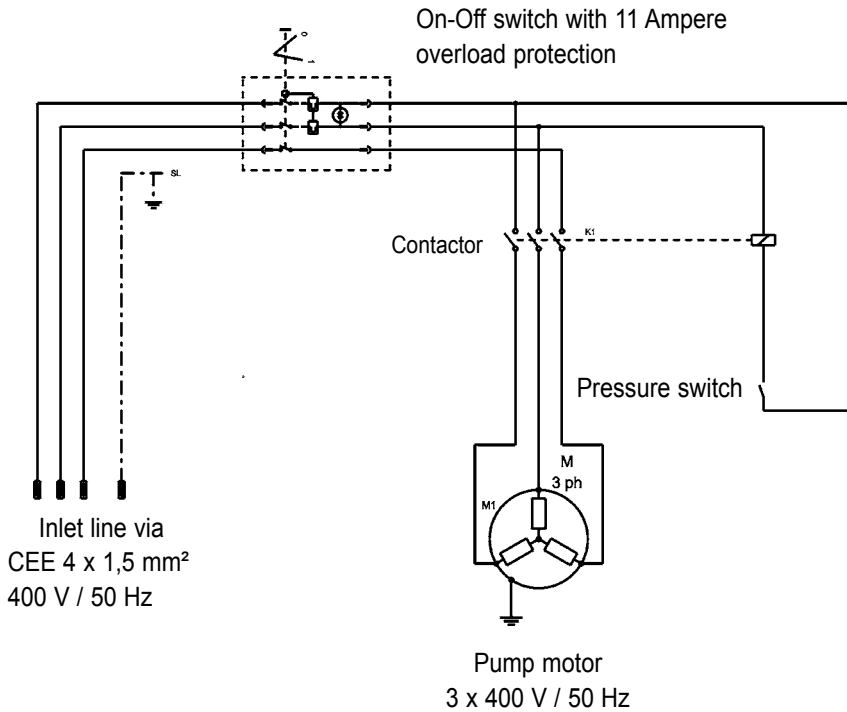
Dirtkiller with lance



No	Description	Qty.	Ord.-No
1	Sprühkörper	1	41.520
2	O-Ring 6,88 x 1,68	1	41.521
3	Düsensitz	1	41.522
4	Düse 03	1	41.523 4
4.1	Düse 045	1	41.523
5	Stabilisator	1	41.524
6	O-Ring	1	40.016 1
7	Sprühstopfen	1	41.526
8	Rohr 400 mm 2x M 12 x 1	1	41.527
9	ST 30-Nippel M 22 x 1,5 / M 12 x 1 ISK	1	13.363
11	Kappe vorn für Schmutzkiller	1	41.528 1
12	Kappe hinten für Schmutzkiller 03	1	41.542 1
12.1	Kappe hinten für Schmutzkiller 042	1	41.540 2
Rep.-Satz Schmutzkiller 03			41.096 1
Rep.-Satz Schmutzkiller 042			41.097
bestehend aus je 1x 2; 3; 4; 5			
Schmutzkiller 03 kpl. mit Lanze			41.073 8
Schmutzkiller 042 kpl. mit Lanze			41.072 5

46 Wiring diagram Kränzle 2160 / 2195,
230 V, 50 Hz

Wiring diagram Kränzle 2175, 400 V, 50 Hz



Kränzle – world-wide:
Technical perfection, top design.

kränzle®

w w w . k r a e n z l e . c o m



I. Kränzle GmbH
Elpke 97
D - 33605 Bielefeld

Reprint only allowed with the authorisation of Kränzle.

As date of 06.07.2011

Subject to technical modifications. Order no. 30.790 1