

USER MANUAL KPL STREET WASHING UNITS











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1. **GENERAL**

This manual contains general information about assembly, installation, operation and maintenance of the DYNASET equipment.



WARNING

Read this user manual before the installation, use or maintenance of the DYNASET product to ensure proper handling, operation and maintenance right from the beginning. Pay attention to warnings and safety instructions. READ **CHAPTER "2. SAFETY" for more information.**

KPL STREET WASHING UNITS GENERAL



1.1 PRODUCT INFORMATION

DYNASET KPL High pressure street washing unit is a powerful accessory. It utilizes Dynaset HPW - Hydraulic High Pressure Water Pump, which transforms the hydraulic power of a working machine into high pressure water. The HPW pump is free of rotating parts, which makes it very durable and maintenance free.

Compact size, light weight and low water consumption make the KPL unit a cost-saving and work efficient solution. High pressure water digs dust and sand out from the pores in asphalt, concrete and similar surfaces. This way the surface will not emit dust after drying. Small water consumption makes it possible to wash large areas effectively even with a small vehicle, with less amount of water.

Street washing units raise the degree of working machine's versatility. With quick couplings the KPL units are easy to connect to different carriers. This guarantees optimal usability and best possible work results.

KPL Street Washing Units come in different models. The basic KPL Street washing Unit comes in four sizes: S, M, L, XL. The basic model is a complete unit with street washing frame, pump unit and container.

The basic KPL units also include washing pistol and hose reel with 20 meter hose, which make cleaning of the apartment entrances, corners and other tight spaces effective and easy. Statues, park benches, road signs etc. can also be washed without prior arrangements with the handy washing pistol.

KPL-F is a modular unit, where you have the KPL washing frame unit as standard. The optional pump unit and the washing pistol with the hose reel can be installed separately to more suitable place according to the users needs. The KPL-F does not include the container, but can easily be connected to other water source or container, like a KPL-R.

KPL-R is also modular in sense that the container and the pump unit is combined, but it does not include the street washing head. KPL-R can easily be combined with existing washing head or with KPL-F.

KPL TRUCK contains the washing head, pump unit and hose reel with washing pistol. It is designed for trucks and such vehicles.

The units and their combinations are presented in this chapter.





1.2 PRODUCT IDENTIFICATION KEY

KPL - XL - 180 - 2200x10 - SK-24



Picture 1: Identification key for KPL units

- 1. Product group KPL Street Washing Unit.
- 2. Size (listed below)

S = 1 water tank, 270 litres.

M = 2 water tanks, 540 litres.

L = 3 water tanks, 810 litres.

XL = 4 water tanks, 1080 litres.

3. Maximum water pressure (bar) of HPW pump in KPL.

- 4. Washing pipe length (mm) and count of water nozzles.
- 5. Turning Device control (listed below)

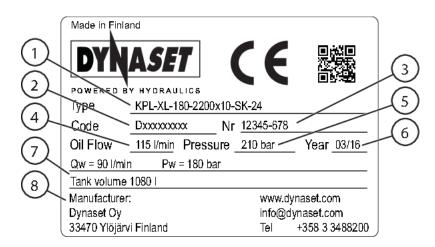
M = Manual

HK = Hydraulic turning control.

SK = Electric turning control with 12V or 24V control voltage.



1.3 TYPE PLATE



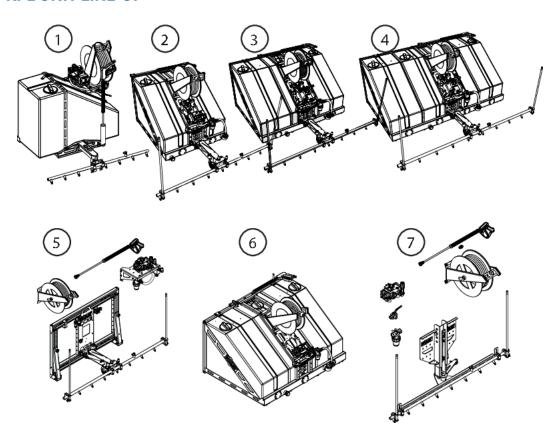
Picture 2: Type plate

The products type plate shows the following information.

- 1. Product identification key
- 2. Product code
- 3. Serial number
- 4. Maximum hydraulic flow
- 5. Maximum hydraulic pressure
- 6. Production month / year
- 7. Output water flow rate and pressure.
- 8. Manufacturer's contact information



1.4 KPL UNIT LINE-UP



Picture 3: KPL unit line-up

KPL BASIC MODELS					
1. KPL S	2. KPL M	3. KPL L	4. KPL XL		
1. KPL S 250	KPL M 250	3. KPL L 250	4. KPL XL 220		
-	-	3. KPL L 220	4. KPL XL 180		

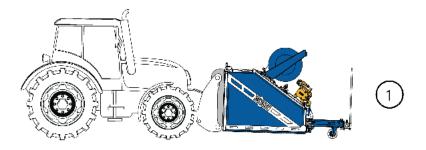
KPL MODELS				
5. KPL-F	6. KPL-R	7. KPL-TRUCK		
KPL-F-1650x9x6501	KPL-R-M-250	KPL-TRUCK-250-1650x9		
KPL-F-2200x10x65015	KPL-R-L-250	KPL-TRUCK-220-2200x10		
KPL-F-1850x9x65015	KPL-R-L-220	KPL-TRUCK-90-2200x10		
KPL-F-2200x10x6503	KPL-R-XL-220	KPL-TRUCK-180-2200x10		
KPL-F-2200x10x6507	KPL-R-XL-180	-		

KPL-F and KPL-R Models can also be equipped with or without optional hydraulic high pressure water pump unit or with Washing pistol unit



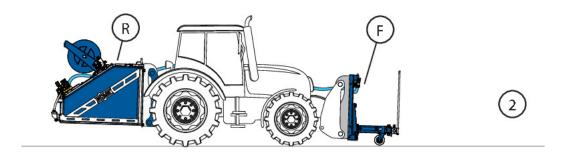
1.5 USE AND COMBINATIONS OF KPL UNITS

KPL units come in few different combinations and models. Here is a list and examples of their usage and benefits.



Picture 4: KPL Combinations

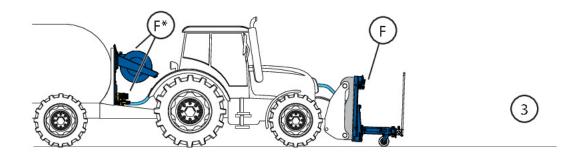
1. Basic KPL is a standalone unit for street and power washing. It comes in four standard sizes: S, M, L, XL. It can be attached to a base machine like a compact loader or a tractor.



Picture 5: KPL Combinations

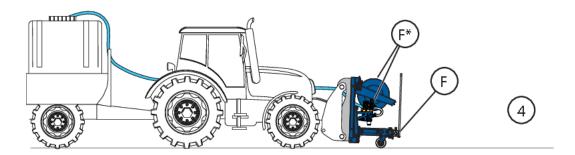
2. KPL-F and KPL-R are KPL units that have been modified for different base machine setups. In this picture there is a tractor equipped with KPL-F in the front and KPL-R at the rear of it. KPL-F has the street washing pipe and KPL-R has the container, pump unit with hose reel and washing pistol. This way the operator has a better visibility and also a possibility to use KPL-R as a reservoir and power washer unit, without the street washing head of KPL-F.





Picture 6: KPL Combinations

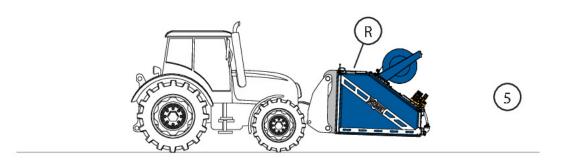
3. Here is a combination of the standard KPL-F (F) with an optional KPL-F Pump and KPL-F Hose reel unit (F*). Combination enables more modular placement of the washing setup on the working machine. In this configuration, contrary to the position 2, there is a separate water container. If the operator already has a water container, and has no need for a new one, KPL-F and an optional KPL-F pump unit can be ordered to form complete street washing setup. KPL-F comes without the pump unit or hose reel unit as standard.



Picture 7: KPL Combinations

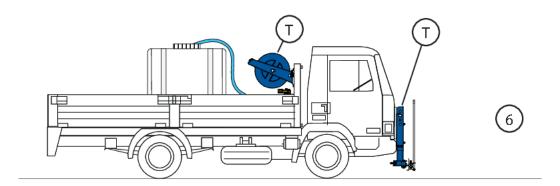
4. Another combination with the standard KPL-F, optional KPL-F Pump unit and KPL-Hose reel unit. This is a perfect combination for those who already have a water container and want to have the washing pistol ready and available in the front of the machine.





Picture 8: KPL Combinations

5. KPL-R has, as a standard, container, pump unit, washing pistol, and hose reel, so it can also be used as a standalone unit for power washing.



Picture 9: KPL Combinations

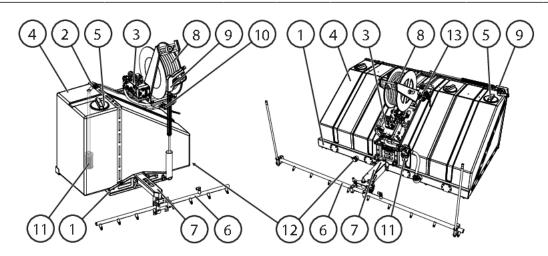
6. KPL Truck is designed to be installed on trucks, pick-ups and similar vehicles. It contains, as a standard, washing pipe frame, pump unit and washing pistol with a hose reel.



1.6 MAIN COMPONENTS

The unit combinations and their options include the following components. The main components are presented in the next chapter.

Model	Main Components						
	Washing Pipe frame	Pump unit	Water filter	3-way limiter valve	Con- tainer	Wash- ing Pistol	Hose reel
KPL Basic	Х	х	Х	Х	Х	Х	Х
KPL F	х						
KPL F* Pump unit		Х	х	х			
KPL F* Wash- ing Pistol unit						х	х
KPL R		х	Χ	Х	х	Х	Х
KPL TRUCK	х	х	х			Х	х

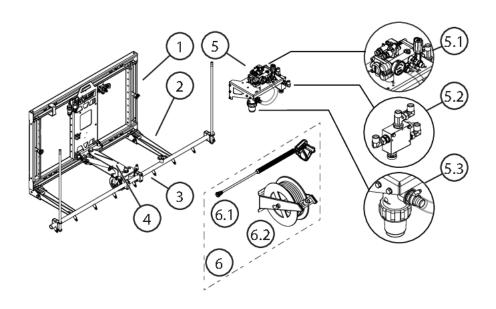


Picture 10: Main components of Basic KPL unit

- 1. Frame
- 2. Support
- 3. HPW pump
- 4. Water tank
- 5. Water fill cap
- 6. Street washing pipe
- 7. Turning device

- 8. Hose reel
- 9. Washing pistol
- 10. 3-way water valve
- 11. Water filter
- 12. Drain plug
- 13. 3-way oil flow limiter valve

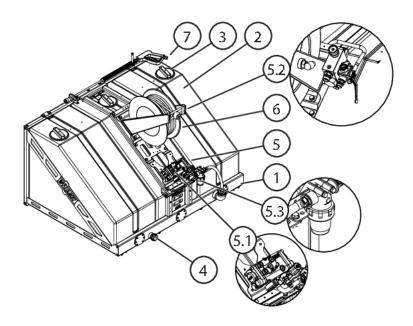




Picture 11: Main components of KPL-F unit

- 1. Frame
- 2. Foldable support legs
- 3. Street washing pipe
- 4. Turning device
- 5. Optional HPW pump unit
 - 5.1HPW Pump
 - 5.23-way oil flow limiter valve
 - 5.3Water filter
- 6. Optional washing pistol unit
 - 6.1Washing pistol
 - 6.2Hose reel

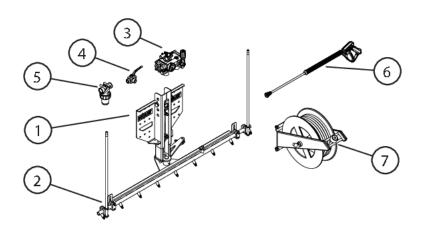




Picture 12: Main components of KPL-R unit

- 1. Frame
- 2. Water tank
- 3. Water fill cap
- 4. Drain plug
- 5. Optional HPW pump unit
 - 5.1HPW pump
 - 5.23-way oil flow limiter valve
 - 5.3Water filter
- 6. Hose reel
- 7. Washing pistol
- 8. Optional KPL-F Unit. Check the KPL-F Main component picture





Picture 13: Main components of KPL-TRUCK unit

- 1. Frame and attachment plate
- 2. Street washing pipe Frame
- 3. HPW pump
- 4. 3-way water valve
- 5. Water filter
- 6. Washing pistol
- 7. Hose reel



2. SAFETY

2.1 SAFETY PRECAUTIONS



WARNING

Operators and maintenance personnel must always comply with local safety regulations and precautions in order to close out the possibility of damages and accidents.

The pressure in both hydraulic oil and water circuits of KPL unit is considerably high. Keep the condition of your equipment and hydraulic system under constant observation.



Couplings, valves and hoses must be tight and clean to avoid possible leakages. Leaks in the hydraulic system must be repaired immediately to avoid injuries caused by high pressure blowouts.

In order to avoid accidents, it is not allowed to clean or inspect KPL unit when hydraulic fluid circuit is pressurized. Prior to any cleaning, inspection and service, hydraulic system of your base machine must be stopped and all hydraulic fluid circuits must be depressurized.

Prevent nozzles, water circuit and pipeline from freezing. Draining and air flushing of the water circuit must be done before ambient temperature reaches 0°C (32°F) or lower.



CAUTION

PREVENT FROM FREEZING!

Freezed water inside the unit can permanently damage the unit. Always make sure the unit is properly drained and flushed after use in cold weather. In case this is not possible, mix environment friendly anti-freeze liquid to the water.



2.2 SAFETY EQUIPMENT

When operating close to the KPL unit, wear appropriate clothing and safety equipment such as safety goggles, safety shoes and ear protection.











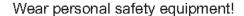
2.3 OPERATING SAFETY

When operating the KPL unit, beware of the unit parts warmed by hot hydraulic oil.



RISK OF BURNS!

The unit parts and hydraulic oil can be hotter than 80 °C!





Never aim high pressure water at a person.



HIGH PRESSURE WATER!

Never aim high pressure water at a person. This can cause severe injuries.





! WARNING

Do not exceed the maximum pressure, temperature or load.



/!\ WARNING

Always detach KPL unit on to a firm and level surface for storage. Always storage in a way that the unit can't fall or cause damage.



/!\ WARNING

Always make sure that the KPL unit is properly coupled to the mobile machine. Dropping the KPL can damage the unit or cause injury.





WARNING

KPL unit can propel small rocks and objects to its surrounding. Make sure that no one is in close range when using the street washing head.



! WARNING

When using the KPL units, do not leave fingers or anything else between the washing pipe, support legs and frame.

2.4 **MAINTENANCE SAFETY**



WARNING

Installation and service of hydraulic equipment must be performed by qualified and experienced personnel only.



NOTE!

When carrying out any maintenance to KPL unit keep the components of the system clean. This is to ensure safe, reliable and longlife operation of your equipment.

Hydraulic system of the base machine should be maintained according to the service program.

Always wear eye protection when you use high pressure air in maintenance. Do not aim compressed air at people or yourself, it can cause serious injury.



WARNING

HIGH PRESSURE AIR!

Never aim compressed air at a person or animal. Can cause severe injuries.





2.5 **WARNING LABELS**

Product recipient is obligated to place warning labels on the DYNASET product.Attach labels to visible and appropriate place onto or close to DYNASET product where it's easily seen.

Clean surface with solvent detergent before attaching labels.



INSTRUCTIONS.



READ OPERATING USE EAR PROTECTION **AND SAFETY** GOGGLES.



KEEP FROM FREEZING.



BEWARE OF HIGH PRESSURE SPLATTERS.

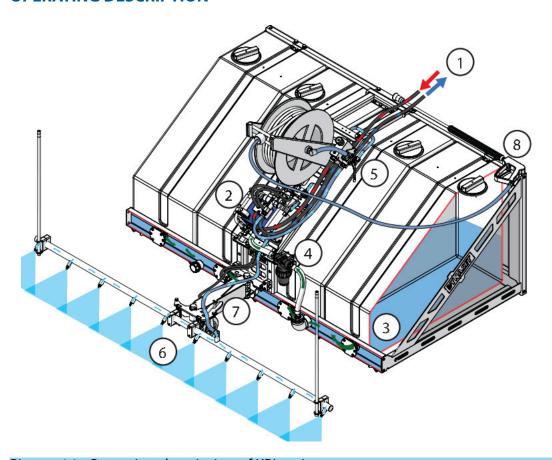


BEWARE OF HOT SURFACE.



3. OPERATING PRINCIPLES

3.1 OPERATING DESCRIPTION

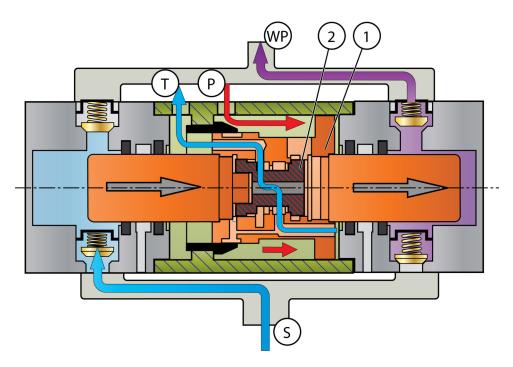


Picture 14: Operating description of KPL unit

HPW pump (2) of the KPL unit is driven by hydraulic oil flow (1) from the base machine. The HPW pump self-primes water from water tanks (3) and water is filtered with a water filter (4). High pressurized water flows from the HPW pump to 3-way valve (5), where the water can be directed to street washing pipe (6) or to washing pistol (8). The steering angle and the position of the street washing pipe can be adjusted with turning device (7) in KPL M, L and XL models. In KPL S model steering angle can be adjusted manually.

The patented HPW pump utilizes the reciprocal motion of the hydraulic piston.



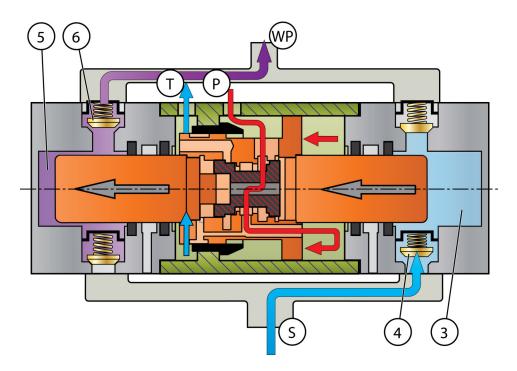


Picture 15: Operating description of HPW pump 1

HPW pump is driven by hydraulic flow through the hydraulic ports (P) and (T).

Hydraulic flow moves the piston assembly (1) into its extreme position. When the extreme position is reached, reversal valve (2) inside the piston assembly changes the direction of the hydraulic flow and the piston assembly starts to move into the opposite direction.





Picture 16: Operating description of HPW pump 2

Move of the piston assembly creates pressure and suction. Pump self-primes from water supply line (S) and generates pressure into pressure line (WP). When the piston assembly moves away from the head, it creates underpressure (3) and water (or other pumping fluid) is sucked through intake valve (4) into head.

When the water piston moves towards the head, it creates pressure (5) and water is pushed through pressure valve (6) into pumping fluid outlet (WP).

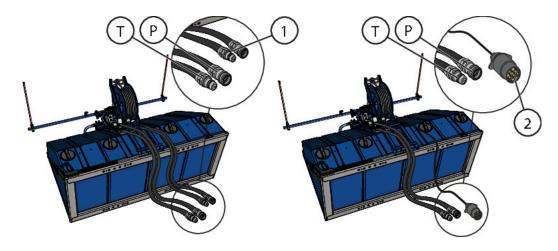
INSTALLATION OF THE KPL UNIT 4.

4.1 INSTALLATION TO A HYDRAULIC TOOL LINE

The KPL unit is recommended to be installed into the base machine's existing hydraulic tool line. Usually other installations are not required and the KPL unit can be operated from the existing controls.

Install the hydraulic tool line's pressure (P) and return (T) ports to their corresponding ports in the KPL unit.

KPL unit is equipped either with hydraulic, electric, or manual turning device control. Hydraulic connection of turning device is connected to other hydraulic tool line connection ports.



Picture 17: Connections of KPL unit

- 1. Hydraulic connection of turning device control
- 2. Electric connection of turning device control

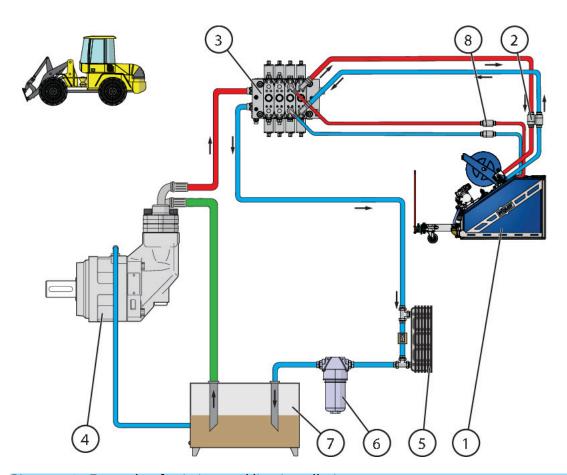
Ensure that the hydraulic flow of the base machine is sufficient to run the unit. At least the nominal hydraulic flow must be available to get the maximum washing power. Lower hydraulic flow reduces washing power.



/!\ WARNING

Ensure that the filtering degree and cooling capacity of the hydraulic system are sufficient.

Next picture presents an example of installing the KPL unit with hydraulic turning control into an existing tool line.



Picture 18: Example of existing tool line installation

- 1. DYNASET KPL unit
- 2. Quick couplers for hydraulic connection
- 3. Open center directional control valves
- 4. Base machines displacement pump
- 5. Oil cooler
- 6. Oil filter
- 7. Oil tank
- 8. Quick couplers for turning device (HK-models)

4.2 HYDRAULIC FLUIDS

To use proper hydraulic fluid, read Hydraulic fluids in chapter 6.



4.3 QUICK ATTACHMENTS

DYNASET KPL can be connected to the base machine with quick attachments.



Picture 19: Quick couplings

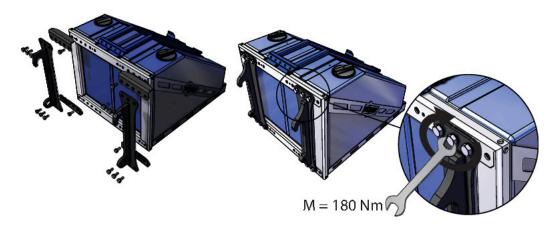
Check available quick attachments from READ CHAPTER "10. TECHNICAL SPECIFICATIONS ".

4.4 INSTALLATION TO THE BASE MACHINE

To install KPL unit to your base machine, first install suitable quick coupling in to your KPL unit. When you install quick couplings to a KPL M unit, you may need adapters.

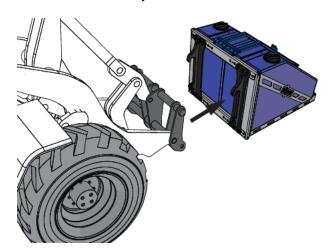
Dynaset also offers plain quick coupling plates so that the user can weld suitable quick coupler attachments that he desires. Ask more information from Dynaset Sales.

To find a list of available quick couplers READ CHAPTER "10. TECHNICAL SPECIFICATIONS "



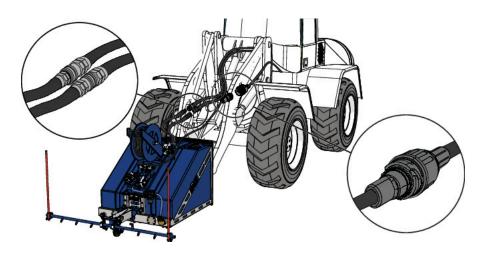
Picture 20: Quick couplings with adapter

Attach KPL unit into your base machine's mounting plate.



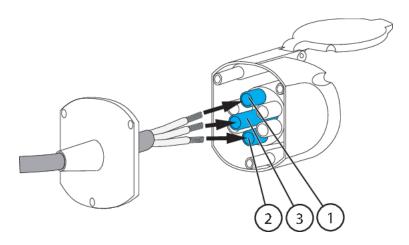
Picture 21: Attach KPL into your base machine

Connect hydraulic hoses and electric cable if washing pipe turning is electrically controlled.



Picture 22: Connect hydraulic connections and turning device connections

4.5 ELECTRIC TURNING DEVICE CONTROL SOCKET CONNECTION



Picture 23: Electric turning device control socket connection

- 1. 1/L Cylinder extend
- 2. **4/R** Cylinder retract

3. **58L** Ground

NOTE!

For electric schematic Read Chapter Electric Schematic

4.6 SETTING KPL-F UP FOR OPERATION / STORAGE



/ WARNING

Always attach the KPL-F unit on to the working machine before you set it up to operation by lifting the support legs.

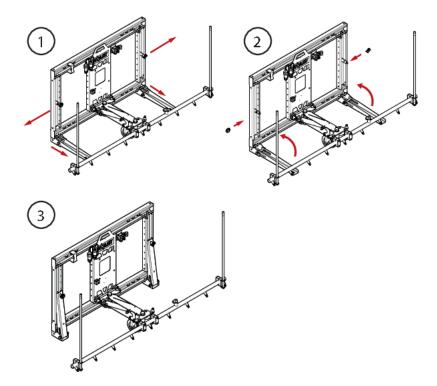
CAUTION

PREVENT FROM FREEZING!

Freezed water inside the unit can permanently damage the unit. Always make sure the unit is properly drained and flushed after use in cold weather. In case this is not possible, mix environment friendly anti-freeze liquid to the water.



Prevent nozzles, water circuit and pipeline from freezing. Draining and air flushing of the water circuit must be done before ambient temperature reaches 0°C (32°F) or lower.



Picture 24: Setting the KPL-F in operation and for storage

Set the KPL-F for operation by lifting the support legs up:

1. Remove the tap and pull the support legs outward



- 2. Push the support legs up
- 3. Plug the tap to secure the leg in upright position

To put the KPL-F back into the storage configuration, just reverse the procedure.



! WARNING

When using the KPL units, do not leave fingers or anything else between the washing pipe, support legs and frame.



WARNING

Always detach KPL unit on to a hard, level surface for storage. Always storage in a way that the unit can not fall or cause damage.

KPL STREET WASHING UNITS OPERATION



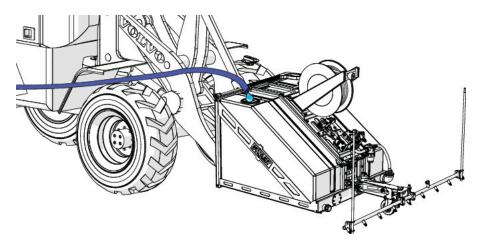
5. OPERATION

After you have ensured the proper mechanical and hydraulic installation of the KPL unit, it is ready for use.



5.1 BEFORE OPERATING THE KPL UNIT

1. Fill the water tank with clean water.

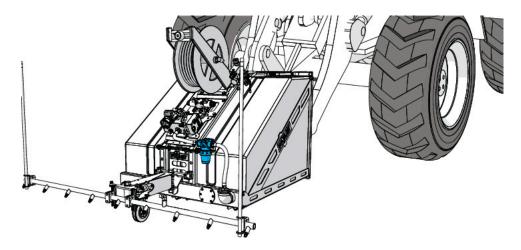


Picture 25: Fill the water tank



Maximum water temperature is 45°C (113°F). Do not exceed the maximum temperature.

2. Ensure that the water filter is clean and in place.



Picture 26: Location of water filter

3. Adjust the washing angle of the washing pipe as instructed in READ CHAPTER "5.3 ADJUSTING WASHING ANGLE "

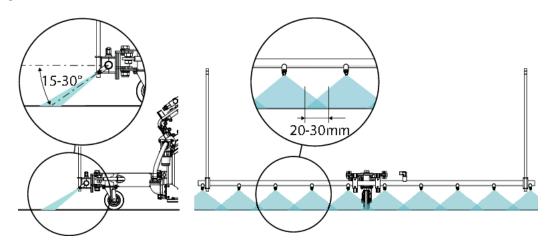


5.2 STARTING AND STOPPING THE KPL UNIT

To start and stop the KPL unit turn on/off the hydraulic flow in to the hydraulic line where KPL unit is installed, for example hydraulic tool line.

5.3 **ADJUSTING WASHING ANGLE**

Washing angle should be 15° - 30° and the height of the washing pipe should be positioned so that the water jets cross each other 20-30 mm (0.79-1.18in) before hitting ground.



Picture 27: Washing angle



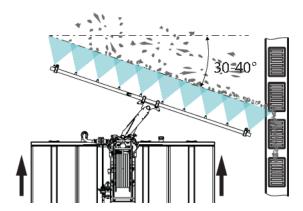
WARNING

Wrong positioning of the washing pipe can cause washing power loss up to 50 %.



5.4 ADJUSTING STEERING ANGLE

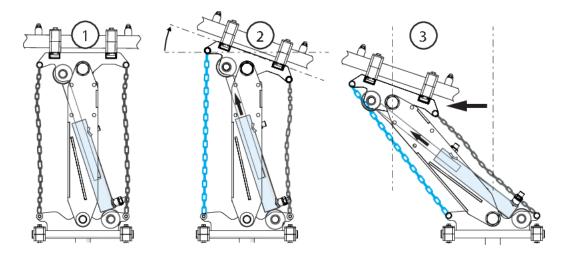
The steering angle of the washing pipe determines the direction where the dirt is moved to. The steering angle of 30° - 40° is most effective. High pressure water jets work as dozer blade, moving dirt along the washing pipe to its other end and further aside.



Picture 28: Steering angle

In KPL M, L, XL and KPL-F models steering angle can be adjusted with turning device and in KPL S it can be adjusted manually.

To adjust steering angle in KPL M, L, XL and KPL-F models extend (or subtract, depending on the desired direction) the cylinder of the turning device. In KPL-TRUCK the turning method is similar but the structure of the device is different. In KPL-TRUCK there is no horizontal movement on the washing pipe.

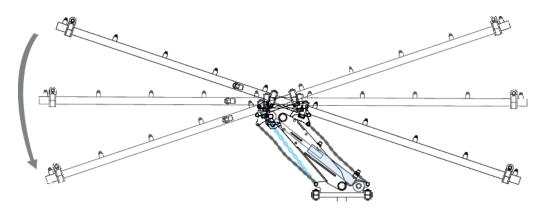


Picture 29: Adjusting steering angle

To position the washing pipe left or right, extend or subtract the cylinder of the turning device until the other chain is tight. Keep extending the cylinder and the turning device rotates to the direction of the tight chain. When the desired position of the washing pipe is achieved, stop extending the cylinder of the turning device.



The steering angle of the washing pipe can be adjusted after positioning the washing pipe.

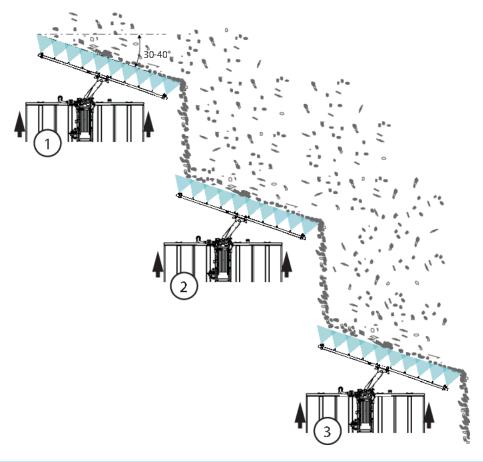


Picture 30: Steering angle in far left position of turning device



5.5 **WASHING**

When you wash a large area, start from the highest point of the area. When you wash the first lane, dirt runs with the washing water and moves to the next lane. Wash the area one lane at the time until the whole area is clean.



Picture 31: Washing a large area

5.6 **WORKING IN COLD TEMPERATURES**

To prevent pipes and KPL unit from freezing in cold season the pump, water lines and water tank must be dewatered after a working shift. Open the drain plug of the water tank and drain out the water. When the tank is empty, run the pump dry for a while until all water is removed from water circuit.



WARNING

Prevent the KPL unit from freezing.



6. **MAINTENANCE**

6.1 **GENERAL**



WARNING

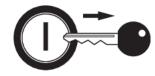
All installations and maintenance must be done according to this manual. All installations and maintenance that is not shown in this manual should only be done by a qualified mechanic or electrician depending on the jobs requirements.



WARNING

Before you do any maintenance or repair, always make sure that the hydraulic system is turned off and depressurized. Make sure that the system does not turn on while doing maintenance.







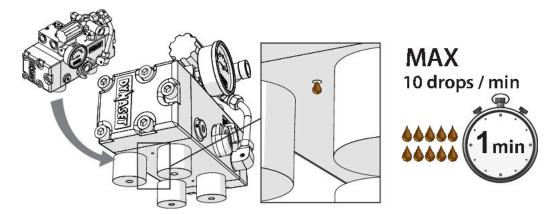
6.2 MAINTENANCE INTERVAL

All maintenance must be complied with as they are scheduled in this manual.

The following table provides maintenance schedule for DYNASET KPL units.

Check points	Daily	After daily use	Every 1500 hours or if necessary
Observe HPW pumps leakage detectors	X		
Clean KPL unit		X	
Clean water intake filter	Х	X	
Change water intake filter			x
Change filter of nozzles			x
Change HPW pump sealings			x

Check constantly whether the fluid dropping from pump's leakage detectors is growing. Replace sealing in proper time to exclude intermixing of hydraulic oil and pumping fluid. Sealing's replace instructions are in HPW User Manual.



Picture 32: Location of leakage detectors in HPW



6.3 **HYDRAULIC FLUIDS**

A wide range of standard hydraulic fluids can be used with the DYNASET hydraulic equipment. Depending on the operating temperature, the following mineral hydraulic oils are recommended:

Mineral hydraulic oil	Operation temperature up to
ISO VG 32S	60°C (140°F)
ISO VG 46S	70°C (158°F)
ISO VG 68S	80°C (176°F)



MARNING

Recommended oil viscosity is between 10 and 35 cSt when operating at normal operating temperature.

Synthetic and bio-oils can also be used if their viscosity characteristics and lubricating efficiency are similar to mineral oils. Automatic transmission fluids and even engine oils can be used, provided that they are allowed to be used in hydraulic system of your base machine.

For the hydraulic fluid change interval, obey the base machine's maintenance instructions.

To use special hydraulic fluids with DYNASET equipment, contact the nearest DYNASET representative for more information.

6.4 **CLEAN THE KPL UNIT**



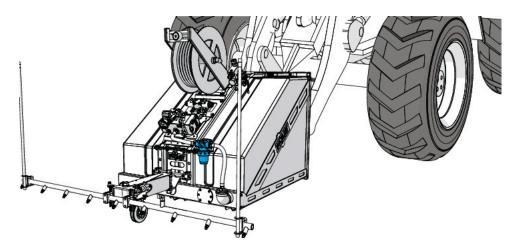
/ WARNING

Keep the KPL unit clean to enable its safe and longlife operation. Check and clean your KPL unit after every work shift.



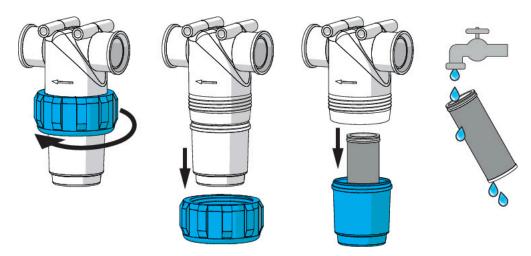
6.5 CLEAN WATER FILTER

Water filter is located in front of the water tank.



Picture 33: Location of water filter in KPL M, L and XL

Check and clean the water filter every 3 months in KPL M, L and XL models. Replace if necessary. Check and replace the water filter every 3 months in KPL S.

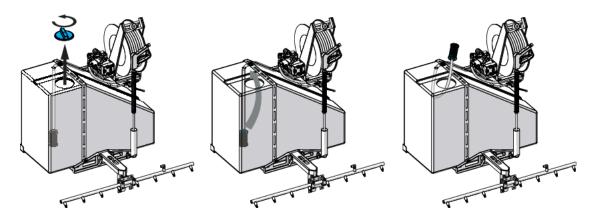


Picture 34: Clean water filter in KPL M, L and XL

Remove the water filter in KPL M, L and XL models. Wash the water filter under clean water to remove all soil and dirt from the filter. Install clean filter back to the KPL unit.

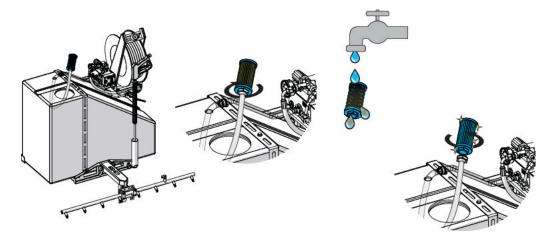
In KPL S model water filter is located inside the water tank.





Picture 35: Location of water filter in KPL S

To clean or replace the water filter, open water tank cover and pull out the water filter.

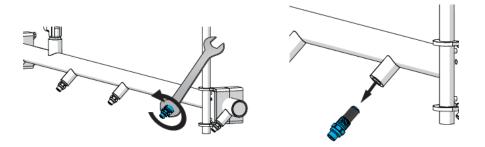


Picture 36: Clean water filter in KPL S

Remove the water filter from the suction hose and clean the filter or install new water filter if necessary.

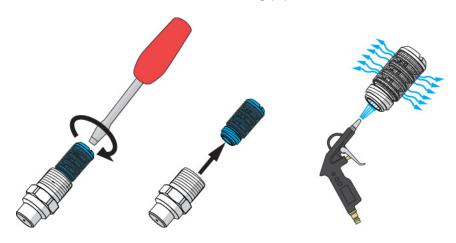


6.6 CLEAN NOZZLE FILTER



Picture 37: Remove nozzle from street washing pipe

Remove the nozzle from street washing pipe.



Picture 38: Remove and clean nozzle filter

Remove nozzle filter from the nozzle. Use an air blow gun to clean the clogged nozzle filter. Re-install clean nozzle filter to nozzle and street washing pipe.

Always use eye protection when you use high pressure air. Do not aim compressed air at people or yourself, it can cause serious injury.





6.7 TROUBLESHOOTING

Performing the maintenance tasks requires a qualified hydraulic mechanic. Please, contact DYNASET authorized workshop or dealer for more maintenance information.

FAILURE	REASON	CORRECTIVE ACTION
KPL unit does not work.	Hydraulic flow is not sufficient or no hydraulic flow at all.	Enable or adjust the hydraulic flow.
	Hydraulic pressure is too low.	Adjust the hydraulic pressure.
	Hydraulic flow reversed.	Check and reconnect hydraulic hoses. Pressure hose should be connected to Pport and return hose to Tport.

FAILURE	REASON	CORRECTIVE ACTION
KPL unit does not deliver water	No water in tanks.	Check and fill the water tank.
	Intake hose detached or hose breathes.	Check and fix the hose and connectors.
	Water supply line is clogged.	Check water filter and clean thoroughly.
	Nozzle is clogged	Check and clean the nozzle filter.

Troubleshooting for HPW pump can be found in HPW User Manual.



KPL STREET WASHING UNITS MANUFACTURER'S LIMITED WARRANTY

7. MANUFACTURER'S LIMITED WARRANTY

7.1 WARRANTY COVERAGE

All hydraulic accessories manufactured by DYNASET OY are subject to the terms and conditions of this limited warranty. Products are warranted to the original purchaser to be free from defects in materials or workmanship. Exclusions from warranty are explained in item Exclusions from warranty.

7.2 BEGINNING OF WARRANTY PERIOD

Warranty period begins from the delivery date of the product. Delivery is considered to be done on the date when installation has been accomplished or purchaser has taken the product in use. Product is considered as taken in use at the date when DYNASET OY has delivered the product to purchaser, unless separately agreed otherwise by written agreement.

7.3 WARRANTY PERIOD

Warranty period is twenty-four (24) months based on maximum of 2000 hours usage during this time period. In cases where the system is provided complete with certain special components (e.g. drive unit), those components are considered as a subject to their manufacturer's warranty.

7.4 WARRANTY PROCEDURES

Immediately upon identifying a problem which purchaser believes to be a failure subject to the product's limited warranty, purchaser must contact primary to the seller of the product. Contact must be made as soon as possible, the latest thirty (30) days after the problem was identified. Seller and/or manufacturer technical staff determines the nature of the problem primarily by phone or e-mail. Purchaser commits to give necessary information and to perform routine diagnostic procedures in order to determine the nature of the problem and necessary procedures.



KPL STREET WASHING UNITS MANUFACTURER'S LIMITED WARRANTY

7.5 WARRANTY REPAIRS

If the product is found to be defective during the warranty period, DYNASET OY will, at its option, either repair the product, author it to be repaired at its authorized workshop or exchange the defective product. If the product must be repaired elsewhere than premises of DYNASET OY or authorized workshop, all costs excluded from this warranty (travelling and waiting hours, daily allowance, travelling expenses and uninstallation/reinstallation costs) will be charged from the purchaser. If the problem is not covered by this limited warranty, DYNASET OY has the right to charge purchaser of troubleshooting and repairing.

7.6 DELIVERY TERMS OF WARRANTY REPAIR

If the product is found possible to be defective under this limited warranty, and it needs to be repaired, DYNASET OY gives Warranty Return Number (WRN). Items being returned must be shipped, at the purchaser's cost, adequately packed for shipment, to the DYNASET OY or to other location authored by DYNASET OY.

Shipment documents must contain:

- Purchaser's name and contact information
- Receipt of original purchase
- WRN code
- Problem description

7.7 WARRANTY OF REPAIRED PRODUCT

Warranty period of the product repaired under this limited warranty continues to the end of original warranty period.



KPL STREET WASHING UNITS MANUFACTURER'S LIMITED WARRANTY

7.8 EXCLUSIONS FROM WARRANTY

This warranty shall not apply to:

- Failures due to normal wear and tear, improper installation, misuse, abuse, negligence, purchaser selection of improper product to intended use, accident, improper filtration of hydraulic oil or intake water or lack of maintenance.
- Cost of maintenance, adjustments, installation or startup.
- Coating, hydraulic oil, quick couplings and interconnection hoses (internal or external to system assemblies).
- Products altered or modified in a manner not authorized by DYNASET OY in writing.
- Products which have been repaired during warranty period by others than DYNASET OY or its authorized workshop.
- Costs of any other damage or loss, whether direct, indirect, incidental, special or consequential, arising out of the use of, or the inability to use, the product.
- Telephone or other communications expense.
- Product that is used in exceptional conditions, considered to cause excessive wear and tear.
- Faults caused by nature phenomenon like flood, thunder, etc.

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8. **PRODUCT DISPOSAL**

Dispose and recycle all DYNASET products and their packaging environmentally responsible way.

Do not dispose used oils, electrical components, batteries or any other hazardous waste with normal waste. They are harmful for the environment and can be recycled for re-use.

Contact your local waste recycling facility for more information about recycling hazardous waste.



Always act according to the waste legislation, regulations and recommendations in waste disposal and waste recycling issued by your local authorities.



KPL STREET WASHING UNITS DECLARATION OF CONFORMITY

9. DECLARATION OF CONFORMITY

We hereby declare that the design and manufacture of the product stated below are in conformity with the provisions of the European Parliament and Councils on the harmonization of the laws of Member States on the safety of machines.

Machine directive 2006/42/EC

LVD directive 2014/35/EU

EMC directive 2014/30/EU

RoHS directive 2015/863

Applied conformity standards:

EN ISO 4413:2010 Hydraulic fluid power - General rules and safety requirements for systems and their components.

EN60204-1:2018 Safety of machinery – Electrical equipment of machines.

Manufacturer: DYNASET Oy

Menotie 3, FI-33470 Ylöjärvi, Finland

Product group: KPL STREET WASHING UNITS
Product: KPL Street Washing Units

If the device has been modified by someone other than the manufacturer or without the manufacturer's permission, this declaration is not valid.

Timo Nieminen R&D Manager

Menotie 3, 33470

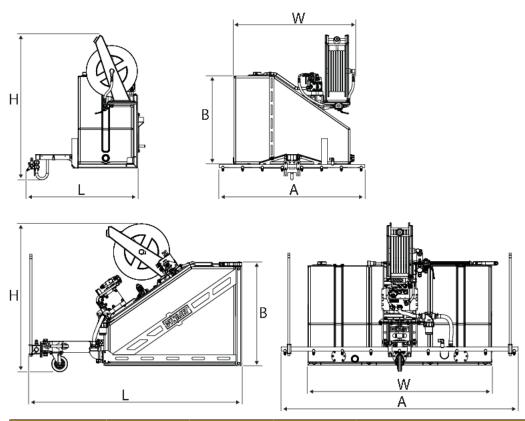
Ylöjärvi, Finland 01.07.2019





10. TECHNICAL SPECIFICATIONS

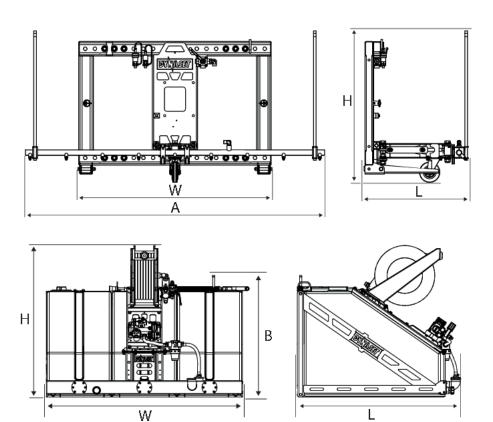
10.1 DIMENSIONS KPL BASIC



Model	Dimensions,	Weight				
	Length, L	Width, W	Height, H	Α	В	kg (lbs)
KPL-S 250	960 (37.8)	1,042 (41.0)	1,143 (45.0)	1,250 (49.2)	880 (34.6)	80 (177)
KPL-M 250	1,655 (65.2)	960 (37.8)	1,100 (43.3)	1,650 (65.0)	945 (37.2)	212 (468)
KPL-L 250	1,655 (65.2)	1,438 (56.6)	1,100 (43.3)	1,650 (65.0)	945 (37.2)	215 (475)
KPL-L 220	1,655 (65.2)	1,438 (56.6)	1,100 (43.3)	1,850 (72.8)	945 (37.2)	225 (497)
KPL-XL 220	1,655 (65.2)	1,916 (75.4)	1,100 (43.3)	2,200 (86.6)	945 (37.2)	302 (667)
KPL-XL 180	1,655 (65.2)	1,916 (75.4)	1,100 (43.3)	2,200 (86.6)	945 (37.2)	312 (689)



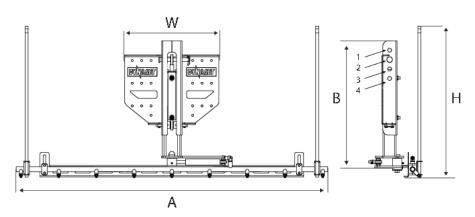
10.2 DIMENSIONS KPL-F/R



Model	Dimensions,	Weight				
	Length, L	Width, W	Height, H	A	В	kg (lbs)
KPL-F 1650x9x6501	624 (24.6)	1,201 (47.3)	870 (34.3)	1,650 (65.0)	()	80 (177)
KPL-F 2200x10x65015	641 (25.2)	1,201 (47.3)	870 (34.3)	2,200 (86.6)	()	85 (188)
KPL-F 1850x9x65015	641 (25.2)	1,201 (47.3)	870 (34.3)	1,850 (72.8)	()	82 (181)
KPL-F 2200x10x6503	641 (25.2)	1,201 (47.3)	870 (34.3)	2,200 (86.6)	()	85 (188)
KPL-R M-250	1,199 (47.2)	960 (37.8)	1,111 (43.7)	960 (37.8)	885 (34.8)	212 (468)
KPL-R L-250	1,199 (47.2)	1,438 (56.6)	1,111 (43.7)	1,438 (56.6)	891 (35.1)	215 (475)
KPL-R XL-250	1,199 (47.2)	1,916 (75.4)	1,111 (43.7)	1,916 (75.4)	891 (35.1)	292 (645)
KPL-R L-220	1,199 (47.2)	1,438 (56.6)	1,111 (43.7)	1,438 (56.6)	891 (35.1)	225 (497)
KPL-R XL-220	1,199 (47.2)	1,916 (75.4)	1,111 (43.7)	1,916 (75.4)	891 (35.1)	302 (667)
KPL-R XL-90	1,199 (47.2)	1,916 (75.4)	1,111 (43.7)	1,916 (75.4)	891 (35.1)	312 (689)
KPL-R XL-180	1,199 (47.2)	1,916 (75.4)	1,111 (43.7)	1,916 (75.4)	891 (35.1)	312 (689)



10.3 DIMENSIONS KPL-TRUCK

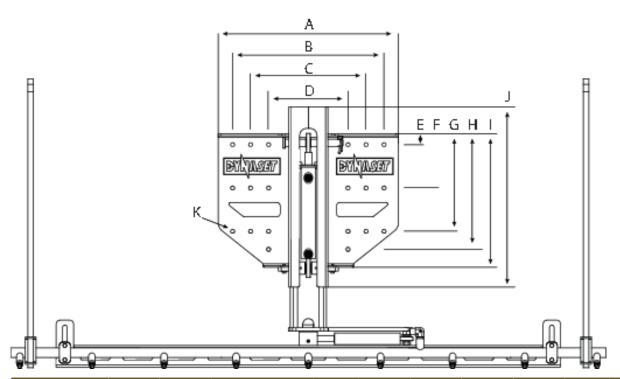


Model	Dimensions, mm (i	Weight		
	Width, W	Height, H	A	kg (lbs)
KPL-TRUCK 250 -1650x9	500 (19.7)	500 (19.7)	1,650 (65.0)	80 (177)
KPL-TRUCK 220 -2200x10	500 (19.7)	500 (19.7)	2,200 (86.6)	85 (188)
KPL-TRUCK 90-2200x10	500 (19.7)	500 (19.7)	2,200 (86.6)	85 (188)
KPL-TRUCK 180-2200x10	500 (19.7)	500 (19.7)	2,200 (86.6)	85 (188)

Model	B = Working Position, Min - Max, mm (in)						
	1	2	3	4			
KPL-TRUCK 250	567-737	617-787	667-837	717-887 (28.23-34.92)			
-1650x9	(22.32-29.02)	(24.29-30.98)	(26.26-32.95)				
KPL-TRUCK 220	567-737	617-787	667-837	717-887 (28.23-34.92)			
-2200x10	(22.32-29.02)	(24.29-30.98)	(26.26-32.95)				
KPL-TRUCK	567-737	617-787	667-837	717-887 (28.23-34.92)			
90-2200x10	(22.32-29.02)	(24.29-30.98)	(26.26-32.95)				
KPL-TRUCK	567-737	617-787	667-837	717-887 (28.23-34.92)			
180-2200x10	(22.32-29.02)	(24.29-30.98)	(26.26-32.95)				





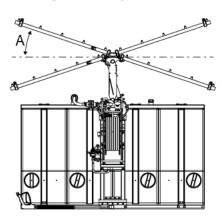


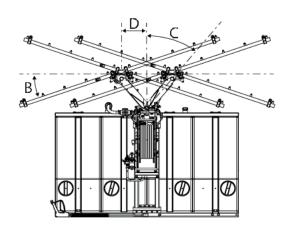
Model	Dimensions, mm (in)										
	Α	В	С	D	E	F	G	Н	ı	J	К
KPL-TRUCK	500	420	320	220	30	150	270	320	370	500	11
250 -1650x9	(19.7)	(16.5)	(12.6)	(8.7)	(1.2)	(5.9)	(10.6)	(12.6)	(14.6)	(19.7)	(0.4)
KPL-TRUCK	500	420	320	220	30	150	270	320	370	500	11
220 -2200x10	(19.7)	(16.5)	(12.6)	(8.7)	(1.2)	(5.9)	(10.6)	(12.6)	(14.6)	(19.7)	(0.4)
KPL-TRUCK	500	420	320	220	30	150	270	320	370	500	11
90-2200x10	(19.7)	(16.5)	(12.6)	(8.7)	(1.2)	(5.9)	(10.6)	(12.6)	(14.6)	(19.7)	(0.4)
KPL-TRUCK	500	420	320	220	30	150	270	320	370	500	11
180-2200x10	(19.7)	(16.5)	(12.6)	(8.7)	(1.2)	(5.9)	(10.6)	(12.6)	(14.6)	(19.7)	(0.4)

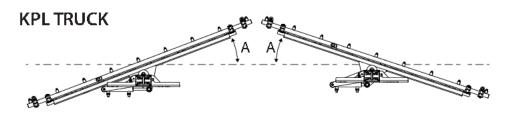


10.4 TURNING DIMENSIONS

KPL / KPL - F / KPL - R



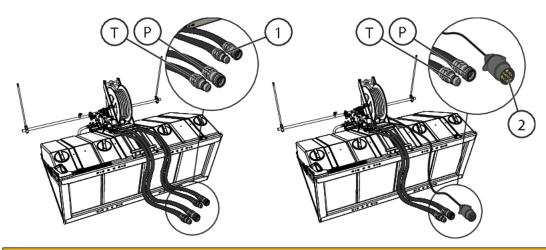




Model	Dimensions					
	A	В	С	D, mm (in)		
KPL-S 250	38°	_0	_0	()		
KPL-M 250	20°	20°	41°	261 (10.3)		
KPL-L 250	20°	20°	41°	261 (10.3)		
KPL-L 220	20°	20°	41°	261 (10.3)		
KPL-XL 220	20°	20°	41°	261 (10.3)		
KPL-XL 180	20°	20°	41°	261 (10.3)		
KPL-F 1650x9x6501	20°	20°	41°	261 (10.3)		
KPL-F 2200x10x65015	20°	20°	41°	261 (10.3)		
KPL-F 1850x9x65015	20°	20°	41°	261 (10.3)		
KPL-F 2200x10x6503	20°	20°	41°	261 (10.3)		
KPL-TRUCK 250 -1650x9	20°	_0	_0	()		
KPL-TRUCK 220 -2200x10	20°	_0	_0	()		
KPL-TRUCK 90-2200x10	20°	_0	_0	()		
KPL-TRUCK 180-2200x10	20°	_0	_0	()		



10.5 HYDRAULIC CONNECTIONS



Model	Connections		Turning Device Control		
	Pressure Line, P	Return line, T	Hydraulic (1)	Electric (2)	
KPL-S 250	1/2 ISO - A	1/2 ISO - A	-	-	
KPL-M 250	1/2 ISO - A	1/2 ISO - A	1/2 ISO - A	ISO 1724	
KPL-L 250	1/2 ISO - A	1/2 ISO - A	1/2 ISO - A	ISO 1724	
KPL-L 220	3/4 TEMA 7500	3/4 TEMA 7500	1/2 ISO - A	ISO 1724	
KPL-XL 220	3/4 TEMA 7500	3/4 TEMA 7500	1/2 ISO - A	ISO 1724	
KPL-XL 180	3/4 TEMA 7500	3/4 TEMA 7500	1/2 ISO - A	ISO 1724	
KPL-F 1650x9x6501	-	-	1/2 ISO - A	-	
KPL-F 2200x10x65015	-	-	1/2 ISO - A	-	
KPL-F 1850x9x65015	-	-	1/2 ISO - A	-	
KPL-F 2200x10x6503	-	-	1/2 ISO - A	-	
KPL-R M-250	1/2 ISO - A	1/2 ISO - A	-	-	
KPL-R L-250	3/4 TEMA 7500	3/4 TEMA 7500	-	-	
KPL-R XL-250	3/4 TEMA 7500	3/4 TEMA 7500	-	-	
KPL-R L-220	3/4 TEMA 7500	3/4 TEMA 7500	-	-	
KPL-R XL-220	1/2 ISO - A	1/2 ISO - A	-	-	
KPL-R XL-90	1/2 ISO - A	1/2 ISO - A			
KPL-R XL-180	1/2 ISO - A	1/2 ISO - A	-	-	



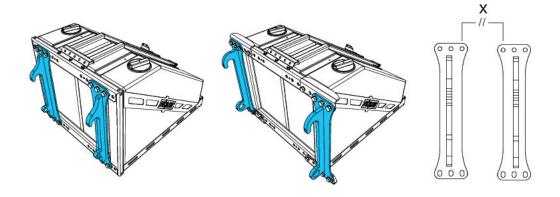


10.6 QUICK ATTACHMENT

Attachment Type						Bolt Distance, mm (in)
KPL Model	KPL	KPL / KPL-R			KPL-F	
KPL Frame Size	S	М	L	XL		Х
3-Point Hitch - Cat. 1	X	Х	х	х	х	510 (1,126)
3-Point Hitch - Cat. 2	Χ	Χ	х	х	х	510 (1,126)
Atlas AR 40-80	-	Α	х	х	х	870 (1,921)
Avant / Agromatic	Χ	Χ	х	Х	X	510 (1,126)
Bobcat	Χ	Χ	х	х	х	630 (1,391)
EURO	Χ	Α	х	х	х	750 (1,656)
Forklift-Adapter	-	Χ	х	х	х	630 (1,391)
Giant	-	Χ	х	х	х	510 (1,126)
Isme	-	Χ	х	х	х	510 (1,126)
JCB-406-409-Zettlemeyer	-	Α	х	х	х	750 (1,656)
Kramer 180-350	-	Χ	-	-	х	270 (596)
Kramer 380-580	-	Α	х	х	х	750 (1,656)
Kunta 500	-	Α	х	х	х	870 (1,921)
Manitou	-	Χ	х	х	х	630 (1,391)
Merlo ZM1-2	-	Χ	х	х	х	630 (1,391)
MP-Lift / Trima	-	Χ	х	х	х	510 (1,126)
Terex TL80-TL120	-	Χ	х	х	х	750 (1,656)
Valtra	-	Α	х	х	х	870 (1,921)
Volvo BM	-	Α	х	х	х	870 (1,921)
Volvo L20-L25	-	Х	х	х	х	510 (1,126)
Volvo TPZ	-	Α	х	х	х	870 (1,921)
Weidemann	Х	Х	х	х	х	510 (1,126)
Weidemann 4070	-	Χ	х	х	х	750 (1,656)
A = With adapter						

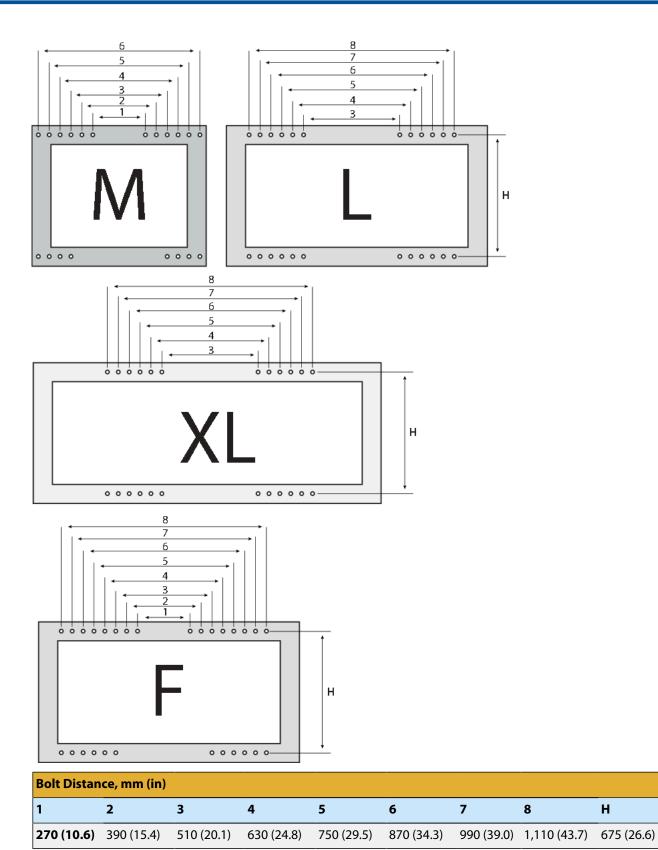


10.7 QUICK ATTACHMENT FASTENING POINTS



Frame	Overall Dimensions, mm (in)				
	A	В			
М	960 (37.8)	775 (30.5)			
L	1,438 (56.6)	775 (30.5)			
XL	1,916 (75.4)	775 (30.5)			
F	1,190 (46.9)	765 (30.1)			







10.8 TECHNICAL SPECIFICATIONS

BASIC MODELS

		KPL-S 250	KPL-M 250	KPL-L 250
WATER POWER				
Flow max.	l/min (gpm)	30 (7.93)	30 (7.93)	30 (7.93)
Pressure max.	bar (psi)	250 (3,626)	250 (3,626)	250 (3,626)
Working width	mm (in)	1,500 (59.1)	1,800 (70.9)	1,800 (70.9)
Water tank	liter (gal.)	270 (71.33)	540 (142.67)	810 (214.00)
Water filter size	in	R3/4	R3/4	R3/4
Water filter mesh	mesh	80<	80<	80<
WASHING PIPE				
Turning device	Manual (M)	М	H/E	H/E
control i	Hydraulic (H)			
	Electric (E)			
Washing pipe width	mm (in)	1,250 (49.2)	1,650 (65.0)	1,650 (65.0)
Washing nozzles		8	9	9
WASHING PISTOL				
Washing pistol hose	in	3/8	3/8	3/8
diameter				
Washing pistol hose	m (ft)	20 (66)	20 (66)	20 (66)
length				
Washing pistol		ST2300 SW 800 2508	ST2300 SW 800 2508	ST2300 SW 800 2508
HYDRAULIC POWER R	EQUIREMENT	S		
Flow max.	l/min (gpm)	40 (10.57)	40 (10.57)	40 (10.57)
Pressure max.	bar (psi)	210 (3,046)	210 (3,046)	210 (3,046)
HYDRAULIC FLUID RE	QUIREMENTS			
Viscosity	cSt	10-200 / optimum 25-35	10-200 / optimum 25-35	10-200 / optimum 25-35
Temperature max.	°C(°F)	70 (158)	70 (158)	70 (158)
Filter ratio	μm	25>	25>	25>
Cooling capacity	kW	2	2	2
requirement				



		KPL-L 220	KPL-XL 220	KPL-XL 180
WATER POWER				
Flow max.	l/min (gpm)	50 (13.21)	50 (13.21)	90 (23.78)
Pressure max.	bar (psi)	220 (3,191)	220 (3,191)	180 (2,611)
Working width	mm (in)	2,000 (78.7)	2,500 (98.4)	2,500 (98.4)
Water tank	liter (gal.)	810 (214.00)	1,080 (285.34)	1,080 (285.34)
Water filter size	in	R1	R1	R1 1/4
Water filter mesh	mesh	80<	80<	80<
WASHING PIPE				
Turning device	Manual (M)	H/E	H/E	H/E
control	Hydraulic (H)			
	Electric (E)			
Washing pipe width	mm (in)	1,850 (72.8)	2,200 (86.6)	2,200 (86.6)
Washing nozzles		9	10	10
WASHING PISTOL				
Washing pistol hose	in	3/8	3/8	3/8
diameter				
Washing pistol hose	m (ft)	20 (66)	20 (66)	20 (66)
length				
Washing pistol		ST2300 SW 800 2508	ST2300 SW 800 2508	ST2300 SW 800 2508
HYDRAULIC POWER	REQUIREMENT	rs		
Flow max.	l/min (gpm)	70 (18.49)	70 (18.49)	115 (30.38)
Pressure max.	bar (psi)	210 (3,046)	210 (3,046)	210 (3,046)
HYDRAULIC FLUID R	EQUIREMENTS			
Viscosity	cSt	10-200 / optimum 25-35	10-200 / optimum 25-35	10-200 / optimum 25-35
Temperature max.	°C(°F)	70 (158)	70 (158)	70 (158)
Filter ratio	μm	25>	25>	25>
Cooling capacity	kW	3	3	6
requirement				



F- MODELS

		KPL-F 1650x9x6501	KPL-F 2200x10x65015
WASHING PIPE			
Turning device	Manual (M)	Н	Н
control	Hydraulic (H)		
	Electric (E)		
Washing pipe width	mm (in)	1,650 (65.0)	2,200 (86.6)
Washing nozzles		9	10

		KPL-F 1850x9x65015	KPL-F 2200x10x6503
WASHING PIPE			
Turning device	Manual (M)	Н	Н
control	Hydraulic (H)		
	Electric (E)		
Washing pipe width	mm (in)	1,850 (72.8)	2,200 (86.6)
Washing nozzles		9	10



		KPL-F HPW250	KPL-F HPW220	KPL-F HPW90	KPL-F HPW180
WATER POWER					
Flow max.	l/min (gpm)	30 (7.93)	50 (13.21)	150 (39.63)	90 (23.78)
Pressure max.	bar (psi)	250 (3,626)	220 (3,191)	90 (1,305)	180 (2,611)
Water filter size	in	R3/4	R1	R1 1/2	R1 1/4
Water filter mesh	mesh	80<	80<	80<	80<
WASHING PIPE					
Washing pipe width	mm (in)	1,650 (65.0)	2,200 (86.6)	2,200 (86.6)	2,200 (86.6)
WASHING PISTOL					
Washing pistol hose	in	3/8	3/8	3/8	3/8
diameter					
Washing pistol hose	m (ft)	20 (66)	20 (66)	20 (66)	20 (66)
length					
Washing pistol		ST2300 SW	ST2300 SW	ST2300 SW	ST2300 SW
		800 2508	800 2508	800 2508	800 2508
HYDRAULIC POWER RE	QUIREMENTS				
Flow max.	l/min (gpm)	40 (10.57)	70 (18.49)	85 (22.46)	115 (30.38)
Pressure max.	bar (psi)	210 (3,046)	210 (3,046)	210 (3,046)	210 (3,046)
HYDRAULIC FLUID REQ	UIREMENTS				
Viscosity	cSt	10-200 /	10-200 /	10-200 /	10-200 /
		optimum 25-35	optimum 25-35	optimum 25-35	optimum 25-35
Temperature max.	°C(°F)	70 (158)	70 (158)	70 (158)	70 (158)
Filter ratio	μm	25>	25>	25>	25>
Cooling capacity	kW	2	2	4	6
requirement					



R-MODELS

	_			
		KPL-R M-250	KPL-R L-250	KPL-R XL-250
WATER POWER				
Flow max.	l/min	30 (7.93)	30 (7.93)	30 (7.93)
	(gpm)			
Pressure max.	bar (psi)	200 (2,901)	200 (2,901)	200 (2,901)
Water tank	liter (gal.)	()	()	()
Water filter size	in	R3/4	R3/4	R3/4
Water filter mesh	mesh	80<	80<	80<
WASHING PISTOL				
Washing pistol hose	in	3/8	3/8	3/8
diameter				
Washing pistol hose	m (ft)	20 (66)	20 (66)	20 (66)
length				
Washing pistol		ST2300 SW	ST2300 SW	ST2300 SW
		800 2508	800 2508	800 2508
HYDRAULIC POWER	REQUIREME	NTS		
Flow max.	l/min	40 (10.57)	40 (10.57)	40 (10.57)
	(gpm)			
Pressure max.	bar (psi)	210 (3,046)	210 (3,046)	210 (3,046)
HYDRAULIC FLUID R	EQUIREMEN	ITS		
Viscosity	cSt	10-200 /	10-200 /	10-200 /
		optimum 25-35	optimum 25-35	optimum 25-35
Temperature max.	°C(°F)	70 (158)	70 (158)	70 (158)
Filter ratio	μm	25>	25>	25>
Cooling capacity	kW	2	2	2
requirement				





	_				
		KPL-R L-220	KPL-R XL-220	KPL-R XL-90	KPL-R XL-180
WATER POWER					
Flow max.	l/min	50 (13.21)	50 (13.21)	150 (39.63)	90 (23.78)
	(gpm)				
Pressure max.	bar (psi)	220 (3,191)	220 (3,191)	90 (1,305)	180 (2,611)
Water tank	liter (gal.)	()	()	()	()
Water filter size	in	R1	R1	R1 1/2	R1 1/4
Water filter mesh	mesh	80<	80<	80<	80<
WASHING PISTOL					
Washing pistol hose	in	3/8	3/8	3/8	3/8
diameter					
Washing pistol hose	m (ft)	20 (66)	20 (66)	20 (66)	20 (66)
length					
Washing pistol		ST2300 SW	ST2300 SW	ST2300 SW	ST2300 SW
		800 2508	800 2508	800 2508	800 2508
HYDRAULIC POWER	REQUIREME	NTS			
Flow max.	l/min	70 (18.49)	70 (18.49)	85 (22.46)	115 (30.38)
	(gpm)				
Pressure max.	bar (psi)	210 (3,046)	210 (3,046)	210 (3,046)	210 (3,046)
HYDRAULIC FLUID R	EQUIREMEN	ITS			
Viscosity	cSt	10-200 /	10-200 /	10-200 /	10-200 /
		optimum 25-35	optimum 25-35	optimum 25-35	optimum 25-35
Temperature max.	°C(°F)	70 (158)	70 (158)	70 (158)	70 (158)
Filter ratio	μm	25>	25>	25>	25>
Cooling capacity	kW	3	3	4	6
requirement					



TRUCK MODELS

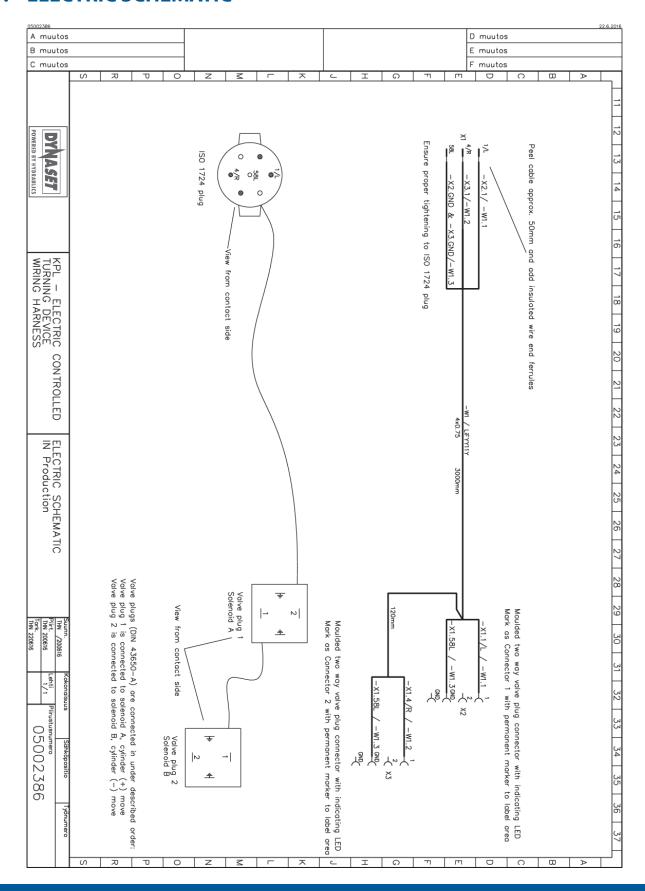
		KPL-TRUCK	KPL-TRUCK	KPL-TRUCK	KPL-TRUCK
		250 -1650x9	220 -2200x10	90-2200x10	180-2200x10
WATER POWER					
Flow max.	l/min (gpm)	30 (7.93)	50 (13.21)	150 (39.63)	90 (23.78)
Pressure max.	bar (psi)	250 (3,626)	220 (3,191)	90 (1,305)	180 (2,611)
Working width	mm (in)	1,800 (70.9)	2,500 (98.4)	2,500 (98.4)	2,500 (98.4)
Water filter size	in	R3/4	R1	R1 1/2	R1 1/4
Water filter mesh	mesh	80<	80<	80<	80<
WASHING PIPE					
Turning device	Manual (M)	Н	Н	Н	Н
control	Hydraulic (H)				
	Electric (E)				
Washing pipe width	mm (in)	1,650 (65.0)	2,200 (86.6)	2,200 (86.6)	2,200 (86.6)
Washing nozzles		9	10	10	10
WASHING PISTOL					
Washing pistol hose	in	3/8	3/8	3/8	3/8
diameter					
Washing pistol hose	m (ft)	20 (66)	20 (66)	20 (66)	20 (66)
length					
Washing pistol		ST2300 SW	ST2300 SW	ST2300 SW	ST2300 SW
		800 2508	800 2508	800 2508	800 2508
HYDRAULIC POWER RE	QUIREMENTS				
Flow max.	l/min (gpm)	40 (10.57)	70 (18.49)	85 (22.46)	115 (30.38)
Pressure max.	bar (psi)	210 (3,046)	210 (3,046)	210 (3,046)	210 (3,046)
HYDRAULIC FLUID REQ	UIREMENTS				
Viscosity	cSt	10-200 /	10-200 /	10-200 /	10-200 /
		optimum 25-35	optimum 25-35	optimum 25-35	optimum 25-35
Temperature max.	°C(°F)	70 (158)	70 (158)	70 (158)	70 (158)
Filter ratio	μm	25>	25>	25>	25>
Cooling capacity	kW	2	3	4	6
requirement					







11. ELECTRIC SCHEMATIC



KPL STREET WASHING UNITS



Picture	1:	Identification key for KPL units
Picture	2:	Type plate
Picture	3:	KPL unit line-up
Picture	4:	KPL Combinations
Picture	5:	KPL Combinations
Picture	6:	KPL Combinations
Picture	7:	KPL Combinations
Picture	8:	KPL Combinations
Picture	9:	KPL Combinations
Picture	10:	Main components of Basic KPL unit
Picture	11:	Main components of KPL-F unit
Picture	12:	Main components of KPL-R unit
Picture	13:	Main components of KPL-TRUCK unit
Picture	14:	Operating description of KPL unit
Picture	15:	Operating description of HPW pump 1
Picture	16:	Operating description of HPW pump 2
Picture	17:	Connections of KPL unit
Picture	18:	Example of existing tool line installation
Picture	19:	Quick couplings
Picture	20:	Quick couplings with adapter
Picture	21:	Attach KPL into your base machine
Picture	22:	Connect hydraulic connections and turning device connections
Picture	23:	Electric turning device control socket connection
Picture	24:	Setting the KPL-F in operation and for storage
Picture	25:	Fill the water tank
Picture	26:	Location of water filter
Picture	27:	Washing angle
Picture	28:	Steering angle
Picture	29:	Adjusting steering angle
Picture	30:	Steering angle in far left position of turning device
Picture	31:	Washing a large area
Picture	32:	Location of leakage detectors in HPW
Picture	33:	Location of water filter in KPL M, L and XL
Picture	34:	Clean water filter in KPL M, L and XL
Picture	35:	Location of water filter in KPL S
Picture	36:	Clean water filter in KPL S



KPL STREET WASHING UNITS

Picture	37:	Remove nozzle from street washing pipe	43
Picture	38:	Remove and clean nozzle filter	43



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ELECTRICITY

HG Hydraulic Generator
HGV POWER BOX Variable Hydraulic
Generator System
HGV Variable Hydraulic Generator System
HWG Hydraulic Welding Generator
HGG Hydraulic Ground Power Generator



HIGH PRESSURE WATER

HPW Hydraulic High Pressure Water Pump
HPW Hydraulic Power Washer
KPL High Pressure Street Washing Unit
KPL-WEED Weed Killing Unit
SCU Surface Cleaning Unit
HPW-DUST High Pressure Dust Suppression
System
PPL High Pressure Pipe Cleaning Unit
HPW-FIRE High Pressure Firefighting System

FP Fire Fighting Piercing Kit
HDF Hydraulic Drilling Fluid Pump
JPL High Pressure Bin Washing System
HSP Hydraulic Submersible Pump



COMPRESSED AIR

HK Hydraulic Piston Compressor
HKL Hydraulic Rotary Vane Compressor
HKR Hydraulic Screw Compressor



MAGNET POWER

HMG PRO Hydraulic Magnet Generator MAG Lift Magnet HMAG PRO Hydraulic Magnet



VIBRATION

HVB Hydraulic Vibration Pump HVD Hydraulic Directional Vibra HRC Hydraulic Reversal Cylinder



POWER BOOSTING

HPI Hydraulic Pressure Intensifier HPI-C Hydraulic Pressure Intensifier for Cylinder



VACUUM

HCF Hydraulic Centrifugal Fan HRVB Hydraulic Recycling Vacuum Bucket



KNOW-HOW

Hydraulic Power Take-off (PTO)
Hydraulic Power Unit Technology
HEU Hydraulic Expansion Unit
HRU Hydraulic Rescue Unis
De-Icing Technology
Installation Valves
HHK Hydraulic Grinder
HV/HVY Hydraulic Winch / Winch Unit

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