

DX 845 W DX 865 DX 985 Titan Energy Titan Energy X



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LTO® Total Cleaning Confidence™







	i - Konformitätserklärung
Wap Reinigungssysteme GmbH & Guido-Oberdorfer-Straße 2-8 D-89287 Bellenberg	Ĉo.
Erzeugnis:	Hochdruckreiniger
Тур:	DX 845 W, DX 865, DX 985, Titan Energy, Titan Energy X
Beschreibung:	IP X5, Schutzklasse I, 50 Hz.
Die Bauart des Gerätes entspricht folgenden einschlägigen Bestimmungen:	t EG-Maschinenrichtlinie 89/392/EWG EG-Niederspannungsrichtlinie 73/23/EWG EG-Richtlinie EMV 89/336/EWG
Angewendete harmonisierte Normen:	EN 292 EN 60335-1, EN 60555-3 EN 50081
Angwendete nationale Normen und technische Spezifikationen:	DIN EN 60335-1 E-DIN VDE 0700 T 265 IEC 335-2-79
	Nieuwhan Nieuwkamp und Zulassungen Bellenberg, 21.08.20

EU Declaration of Conformity

Bellenberg, 21.08.2000

Wap Reinigungssysteme GmbH & Co. Guido-Oberdorfer-Straße 2-8 D-89287 Bellenberg

VP Tech-OP

High Pressure Cleaner Product: DX 845 W, DX 865, DX 985, Titan Energy, Titan Energy X Type: IP X5, Protection class I, 50 Hz Description: The design of the unit corresponds EC Machine Directive 89/392/EWG EC Low-voltage Directive 73/23/EWG EC EMV Directive 89/336/EWG to the following pertinent regulations: 89/336/EWG EN 292 EN 60335-1, EN 60555-3 EN 50081 Applied harmonised standards: DIN EN 60335-1 Applied national standards and E-DIN VDE 0700 T 265 IEC 335-2-79 technical specifications: Johan Ley Digiling W Ricewahan. Johan Ley

Tests And Approvals

Atestado de conformidad de la UE Wap Reinigungssysteme GmbH & Co. Guido-Oberdorfer-Straße 2-8 D-89287 Bellenberg Máquina de limpieza a alta presión Producto: DX 845 W. DX 865. Modelo: DX 985, Titan Energy, Titan Energy X IP X5, Clase de protección I, 50 Hz. Descripción: R. de la UE para máquinas 89/392/EWG R. de la UE para baja tensión 73/23/ La construcción de la máquina corresponde a las siguientes normas específicas: EWG EWG R. de la UE para la compati-bilidad electromagnética 89/336/EWG EN 292 EN 60335-1, EN 60555-3 EN 50081 Normas armonizadas aplicadas: DIN EN 60335-1 Normas nacionales aplicadas y especificaciones técnicas: E-DIN VDE 0700 T 265 IEC 335-2-79 Johan Ley W. Weumpan Johan Ley Dipl.Ing. W. Nieuwkamp Pruebas y homologaciones Bellenberg, 21.08.2000 VP Tech-OP

F Déclaration de conformité CE Wap Reinigungssysteme GmbH & Co. Guido-Oberdorfer-Straße 2-8 D-89287 Bellenberg Produit: Nettoyeur haute pression DX 845 W, DX 865, DX 985, Titan Energy, Titan Energy X Type: Description: IP X5, Classe de protection I, 50 Hz. Directive CE relative aux machines 89/392/EWG Directive CE relative à basse tension 73/23/EWG Directive CE EMV 89/336/EWG La construction de l'appareil est conforme aux réglementations afférentes suivantes: Normes harmonisées appliquées: FN 292 EN 60335-1, EN 60555-3 EN 50081 DIN EN 60335-1 E-DIN VDE 0700 T 265 Normes nationales et spécifications techniques appliquées: IEC 335-2-79 Johan Ley Johan Ley W. Cheunfang Dipl.Ing. W. Nieuwkamp Controles et homologations Bellenberg, 21.08.2000 VP Tech-OP

# Dichiarazione di conformità CE Wap Reinigungssysteme GmbH & Co. Guido-Oberdorfer-Straße 2-8 D-89287 Bellenberg

Prodotto: Pulitrice ad alta pressione DX 845 W, DX 865, DX 985, Titan Energy, Titan Energy X Tipo: IP X5, Classe di protezione I, 50 Hz. Descrizione: La costruzione dell'apparecchio è Direttiva CE sulle macchine conforme alle seguenti direttive specifiche: Direttiva CE sulla bassa tens Direttiva CE sulla compatibil 89/392/FWG Direttiva CE sulla bassa tensione Direttiva CE sulla compatibilità elektromagnetica 73/23/FWG 89/336/EWG Norme armonizzate applicate: EN 292 EN 60335-1, EN 60555-3 EN 50081 Norme nazionali applicate e specifiche tecniche: DIN FN 60335-1 E-DIN VDE 0700 T 265 IEC 335-2-79 Idran Ley Do Ovientan Johan Ley VP Tech-OP Dipl.Ing. W. Nieuwkamp Controlli e omologazioni Bellenberg, 21.08.2000





## **DESCRIPTION (FIG. 1)**

- 1 RotoFix high-pressure spray lance with VarioPress trigger gun<sup>1)</sup>
- 2 Water connection
- 3 Steering roller with parking brake
- 4 High-pressure connection
- 5 Cleaning agent tank
- 6 Mains cable storage point
- 7 Hose storage point
- 8 Spray lance storage clip
- 9 Exhaust pipe
- 10 Operating panel
- 11 Fuel tank
- 12 Pressure gauge
- 13 Temperature controller
- 14 Operation indicator light
- 15 Fuel shortage indicator
- 16 Scale alarm<sup>1)</sup>
- 17 Operating mode switch
- 18 Cleaning agent metering
- knob

### **BEFORE STARTING WORK**

If the machine is to be operated at fuel stations or in other potentially hazardous areas, the machine may only be employed outside the hazard areas defined in the "Technical Guidelines for Inflammable Fluids" applicable at the point of use due to the potential explosion hazard posed by the burner.

If the machine is to be operated indoors, the local building regulations must be observed for the discharge of the exhaust fumes into the atmosphere. Ensure an adequate supply of fresh air.

If the machine is to be connected to a flue gas stack, the state building regulations must be observed. We will be glad to provide tips for connection systems, on request.

Cleaning and Care Agents".

The machine must be supervised at all times so that the operator can notice when the flame goes out.

- ⇒ Secure the machine with the parking brake (Fig. 2).
- ⇒ Check the oil level in the high-pressure pump (Fig. 3).
- ⇒ Fill the cleaning agent tank with prediluted Alto cleaning agent.
- ➡ With the machine cold: Pour fuel (fuel oil EL, biodiesel E to DIN 51 606 or diesel fuel to DIN 51 603) into the fuel tank. The fuel must be free from
  - contamination.
    - Tank capacity: 30 litres

GB



Unsuitable fuels must not be used as they can represent a source of danger.

- At temperatures below 8° C, the fuel oil begins to solidify (paraffin precipitation). This can lead to difficulties in starting the burner. Before the winter period either add a solidification point / flow improver (available from the fuel oil trade) to the fuel or use winter diesel fuel.
- ⇒ Fill the tank for the Alto automatic scale alarm system. "Alto Anti-Stone" prevents any deposits of scale and acts at the same time as a corrosion inhibitor. Use the bottle supplied with the pack for filling (Fig. 4). For compatibility reasons, use only the tested "Alto Anti-Stone". Order the refill pack 6 x 1000 ml, No. 8466, in good time.
- ⇒ Screw the high-pressure hose firmly onto the VarioPress trigger gun<sup>1</sup>, pushing back the slide of the locking pin (Fig. 5/ 1 + 5/2).
- ⇒ Securely tighten the screw of the Roto-Fix high-pressure spray lance, at the same time pushing back the slide of the locking pin (Fig. 5/3 + 5/4).
- ⇒ Connect the water hose (Fig. 6). The use of a fabric-reinforced water hose with a nominal diameter of at least 1/2" (13 mm) is recommended.
- ⇒ Connect the high-pressure hose to the high-pressure connection. Ensure that the union nut is securely tightened (Fig. 7)!
- $\Rightarrow$  Turn on the water tap.
- ⇒ Insert the plug of the cleaner into the plug socket.

### STARTING OPERATION

 The pipework of the machine is filled with antifreeze.
 Collect the first liquid (approx. 5 litres) which comes out of the spray gun in a suitable vessel for further use.

### COLD WATER OPERATION

- ⇒ Release the lock of the trigger gun and press the trigger (Fig.8).
- ⇒ Turn the operating mode switch to position ■■
   -> The function test of the displays on the operating panel starts.
  - All the indicator lights come on briefly, then the indicator light (\*) comes on continuously to indicate that the machine is ready for operation.
- ⇒ Operate the trigger of the trigger gun several times at short intervals to bleed the system.

### HOT WATER OPERATION

- ⇒ Select the temperature (20-100° C).
- ⇒ Release the lock of the trigger gun and press the trigger (Fig.8).
- ⇒ Turn the operating mode switch to position ■■◀.
- ⇒ When a steady jet emerges from the high-pressure nozzle, turn the operating mode switch to position ►>.

Using a special device<sup>1</sup>, the condensate coming out of the heat exchanger can be collected and disposed of in accordance with the local sewage regulations; water poured in and emerging at the nozzle then has the same composition.

#### STEAM OPERATION (OVER 100° C)<sup>1)</sup>

Replace the standard highpressure nozzle with the steam spray nozzle (No. 6692)<sup>1)</sup>. Set the thermostat to a temperature of above 100° C. Turn the rotary knob on the safety control block completely to the left (anticlockwise direction) (**Fig. 9**). Release the lock of the trigger gun and press the trigger. Turn the operating mode switch to position ■ When a steady jet emerges from the steam spray nozzle, turn the operating mode switch to position ► .

#### OPERATION OF THE ROTOFIX HIGH-PRESSURE SPRAY LANCE

The RotoFix high-pressure spray lance allows the spray lance to be turned for pressure-free operation:

- ⇒ Push back the slide of the locking pin (Fig. 5).
- ⇒ Turn the screw fitting of the RotoFix high-pressure spray lance until the pin engages in the next bore.

# OPERATION OF THE COAXIAL SPRAY LANCE<sup>1)</sup>

⇒ The working pressure can be steplessly varied by turning the handle of the spray lance, but with a constant volume of water (Fig. 10).

#### OPERATION OF THE PRESSURE AND WATER VOLUME CONTROLLER

### DX 845 W:

⇒ The rotary knob on the safety control block allows the pressure and water volume to be steplessly varied (Fig. 9).

# DX 865, DX 985, TitanEnergy, TitanEnergy X:

Stepless variation of pressure and water volume

- ⇒ Continuous operation = Rotary knob on the safety control block (Fig. 9).
- Brief operation = Rotary knob on the VarioPress trigger gun<sup>1)</sup> (Fig. 11).

The set pressure can be read off from the pressure gauge.

### USE OF CLEANING AGENTS

- ⇒ Predilute cleaning agents as described under "General" and pour into the cleaning agent tank.
- ⇒ Set the desired concentration of the cleaning agent (table, see section "General") at the metering valve (Fig. 12).
- ⇒ Spray the object to be cleaned.
- ⇒ Allow the cleaning agent to



work, depending on the degree of soiling, then rinse off with the high-pressure spray jet.

The cleaning agent must not be allowed to dry on the surface!

# FINISHING OPERATION AND STORAGE

- ⇒ Turn the metering valve to position **O**.
- ⇒ Turn the operating mode switch to position ■■◀.
- ⇒ Allow the machine to run for approx. 1 minute, then turn the operating mode switch to position OFF.
- ⇒ Actuate the trigger gun until the machine is completely depressurised.
- ⇒ Insert the safety lock (Fig. 8/1).
- ⇒ Turn off the water tap.
- ⇒ Pull the machine plug out of the plug socket and coil up the mains cable.
- ⇒ Disconnect the water hose from the machine.
- ⇒ Store the machine in a frostproof room where it is safe from unauthorised use.

If the machine cannot be stored in a frost-proof room, proceed as follows:

- ⇒ Turn off the water tap.
- ⇒ Turn the operating mode switch to position ■■◀ and actuate the trigger gun
- ⇒ Gradually pour antifreeze (approx. 5 litres) into the water tank.
- ⇒ The machine is protected against frost when antifreeze solution emerges from the nozzle of the spray lance.
- ⇒ When the machine is put into service again, the antifreeze solution can be collected and stored for future use.

### SERVICE AND MAINTENANCE

The maintenance operations marked with  $\frac{1}{2}$  should only be carried out by the Alto service technician.

### MAINTENANCE SCHEDULE

Weekly or every 40 operating hours

⇒ Check the oil level

# Every 3 months or every 200 operating hours

- $\Rightarrow$  Change the pump oil
- ⇒ Pump system
- ⇒ Flame sensor

# Annually or every 500 operating hours

- ⇒ Heat exchanger and ignition system<sup>®</sup><sup>→</sup>
- ⇒ Fuel system 🕯 📬

#### As required

- ⇒ Grease the manual screw fittings on the spray lance and high-pressure hose
- ⇒ Descale the system \*==

# OIL LEVEL CHECK / OIL CHANGE

Check the oil level in the highpressure pump regularly at the oilglass (**Fig. 3**).

- $\Rightarrow$  Top up with oil when required.
- ⇒ If the oil has a grey or white shade, change the oil. Unscrew the oil drain plug on the pump housing and dispose of the old oil in accordance with the disposal regulations.
- ⇒ Renew the drain plug gasket and screw in the plug again.
- ⇒ Fill with oil and close the oil filler plug.

Oil	grade:	AlphaSynt	150
	-	(Order-no.	5218433)
Oil	capacity:	DX 0.35 l	

# PUMP SYSTEM

- ➡ Clean the screens and filter in the water inlet line (float valve, high-pressure pump inlet).
- ⇒ Grease the manual screw fittings on the spray lance and high-pressure hose.

### FLAME SENSOR

- ⇒ Remove the sensor and clean with a soft cloth.
- Ensure that the sensor is correctly seated when installing again.

# HEAT EXCHANGER AND

⇒ Have cleaning carried out by the Alto service technician, see "Maintenance schedule".

### FUEL SYSTEM \*=

- ⇒ Empty the fuel tank. Clean the tank and fuel lines.
- ⇒ Dispose of the cleaning fluid in accordance with the disposal regulations.

#### SETTING OF THE ALTO AUTOMATIC SCALE ALARM SYSTEM#==

The automatic scale alarm system is set at the factory to water hardness class 2. Should an adjustment be necessary, proceed as follows:

- Measure the water hardness or ask your water supply company.
- ⇒ Set the number of drops per minute (see table) at the metering device (Fig. 13).

Hardness	°dH	Drops/min.
class		
1 soft	0-7	10
2 medium-		
hard	7-14 14-21	20
3 hard	14-21	30
4 very hard	>21	40

1°dH = 1,25°e = 1,79°f

### DESCALING 🕅



Descaling agents cause burns. Avoid contact with the skin, eyes and clothes. Wear appropriate protective clothing (e.g. gloves, face mask, apron). Only approved scale removers may be used for descaling. Use Alto Stone-EX, No. 81236

#### With regular use of Alto Anti-Stone, descaling will normally not be necessary.

Incorrect operation of the machine or the use of non-approved cleaning agents can cause deposits in the pipework system. Scaling is caused by the water hardness and is indicated by a gradual increase in the water pressure displayed on the pressure gauge.

If the working pressure is exceeded by 10 bar (with the Vario-Press trigger gun open), the system must be descaled. Procedure:

- ➡ Unscrew the high-pressure nozzle from the spray lance and place separately in the Alto scale remover.
- ⇒ Draw in Alto scale remover via the metering valve by hanging a cleaning agent hose into the scale remover bottle and setting the metering valve to maximum concentration.
- ⇒ Hold the spray lance in a separate container to collect the discharged liquid.
- Switch on the high-pressure pump.
- ⇒ Actuate the trigger gun. Alto scale remover is drawn in and emerges from the spray lance foaming vigorously after approx. 1 minute.
- ⇒ Switch off the high-pressure pump and allow the scale remover to work for approx.
   15 minutes.
- ⇒ Flush out the pump system well with clean water.
- ⇒ After approx. 2 minutes, a

steady jet of water must emerge at the water outlet tube. If this is not the case, repeat the descaling procedure.

⇒ Screw the high-pressure nozzle onto the spray lance.

#### FROST PROTECTION

If the high-pressure cleaner is stored in a room in which temperatures of below 0° C can occur, antifreeze must first be flushed through the pump.

During the flushing process, actuate the trigger gun 2 or 3 times.

In order to avoid any risk, the machine should preferably be stored for a short period in a heated room before it is put into service again.





# TROUBLESHOOTING



### Before working on the machine, remove the mains lead plug and depressurise the machine.

	FAULT	CAUSE	REMEDY
ŧ	Display 🏐 does not light up, machine does not start	> Fault in the mains cable	$\Rightarrow$ Have electrical connection checked
+	Display 🕲 flashes rapidly (5x per second), motor has cut out and will not start again	> Motor overheated	<ul> <li>⇒ Clean or replace clogged high- pressure nozzle</li> <li>⇒ Set the VarioPress control knob on the trigger gun to a higher pressure</li> <li>⇒ Possible phase failure; have electrical connection checked</li> </ul>
ŧ	Display 🕢 is lit continuously	<ul> <li>Anti-Stone concentrate container empty</li> </ul>	⇒ Top up anti-scale concentrate container
‡	Display 🕞 is lit continuously	<ul><li>Fuel tank empty</li><li>Contamination or water in fuel</li><li>Burner sooted</li></ul>	<ul> <li>⇒ Top up fuel tank</li> <li>⇒ Clean fuel tank and pipework</li> <li>⇒ Have burner setting checked</li> </ul>
ŧ	Display ()) flashes slowly (1x per second)	<ul> <li>&gt; Inadequate water inlet</li> <li>&gt; Cleaning agent tank empty</li> <li>&gt; Pressure and volume controller or VarioPress trigger gun set too low</li> </ul>	<ul> <li>⇒ Use water hose with at least 1/2 " diameter, clean filter in water inlet</li> <li>⇒ Top up cleaning agent tank</li> <li>⇒ Set pressure and volume controller or VarioPress control knob on the trigger gun to a higher pressure</li> </ul>
ŧ	Display 🛞 flashes rapidly (5x per second), burner will not start again	<ul><li>&gt; Flame sensor sooted</li><li>&gt; Fault in ignition or fuel system</li></ul>	<ul> <li>⇒ Remove and clean</li> <li>⇒ Call service technician</li> </ul>
‡	Machine stops and starts intermit- tently with the trigger gun open	<ul><li>&gt; High-pressure nozzle soiled</li><li>&gt; Machine scaled</li></ul>	<ul> <li>⇒ Clean or replace high-pressure nozzle</li> <li>⇒ Descale according to the instruc- tions</li> </ul>
+	Machine stops and starts intermit- tently with the trigger gun closed	<ul> <li>Trigger gun leaking</li> <li>High-pressure hose, high-pressure screw fitting or pipework leaking</li> </ul>	<ul> <li>⇒ Inspect the trigger gun</li> <li>⇒ Retighten screw fittings, replace high-pressure hose or pipework</li> </ul>
‡	Pressure too low	<ul> <li>&gt; Cleaning agent tank empty</li> <li>&gt; High-pressure nozzle worn</li> <li>&gt; Pressure and volume controller or VarioPress trigger gun set too low</li> </ul>	<ul> <li>⇒ Top up cleaning agent tank</li> <li>⇒ Replace high-pressure nozzle</li> <li>⇒ Set pressure and volume controller or VarioPress control knob on the trigger gun to a higher pressure</li> </ul>
		<ul> <li>Filter in water inlet clogged</li> <li>High-pressure pump drawing in air</li> <li>Suction or pressure valve of high-pressure pump soiled or defective</li> </ul>	<ul> <li>⇒ Clean filter</li> <li>⇒ Repair leaks</li> <li>⇒ Clean or replace valves</li> </ul>
ŧ	Cleaning agent is not drawn in	<ul> <li>&gt; Cleaning agent tank empty</li> <li>&gt; Sludge in cleaning agent tank</li> <li>&gt; Suction valve at cleaning agent inlet soiled</li> </ul>	<ul> <li>⇒ Top up cleaning agent tank</li> <li>⇒ Clean cleaning agent tank</li> <li>⇒ Remove suction valve and clean or replace</li> </ul>



		DX 845	DX 865	TitanEn	ergy	DX 985	TitanEnergyX
Working pressure	bar	100-30	170-30	190-30	180-30	200-30	180-30 100-30 (UK)
Permissible overpressure	bar	200/32	250/32	250/32	250/32	250/32	250/32 200/32 (UK)
Volumetric flow	l/h	700-400	800-400	900-400	900-400	980-400	900-400 700-400 (UK)
Permissible temperature Voltage 230 V AC	°C	80140 EU	80140	80140	80140	75140	80140 UK
Voltage 200 V 3-phase AC Voltage 220 V 3-phase AC			JP KR	JP KR			
Voltage 230 V 3-phase AC Voltage 380 V 3-phase AC		E,B,N	E,B,N	E,B,N		E,B,N	E,B,N
Voltage 380-415 V 3-phase AC Voltage 400-415 V 3-phase AC			EU	EU	UK	EU	EU
Frequency	Hz	50	50 60 (JP,KR)	50 60 (JP,KR)	50	50	50
Rated power	kW	3,0	5,6	6,9	6,6	7,9	6,6
Fuse	A	16	16	16	16	16	16
Drotoction close		13 (UK)	20 (JP,KR)	25 (JP,KR)	T	T	13 (UK)
Protection class Type of protection		I X5	I X5	I X5	I X5	I X5	I X5
Water volume of the heater coi	і I	^5 3,5	∧⊃ 3,5	^5 3,5	^5 3,5	^5 3,5	3,5
Heating capacity	kW	5,5 62	5,5 62	5,5 62	5,5 62	5,5 62	62
Fuel tank capacity		30	30	30	30	30	30
Cleaning agent tank capacity		2x15	2x15	2x15	2x15	2x15	2x15
Permissible water inlet pressure	bar	10	10	10	10	10	10
Dimensions L x W x H	mm	10	1060 x 70		10	1560x705x	
Machine weight		154	161	173	173	175	188
(weight of trigger gun)	kg	5	5	5	5	5	5
Sound pressure level at a distance of 1 m from	5						
	dB(A)	79,9	82,6	83,5	83,5	84,4	83,5
Oil fill capacity	Ì	0,35	0,35	0,35	0,35	0,35	0,35
Recoil forces	Ν	28	41	47	47	54	47
28(UK)						28(UK)	

Please observe the technical data on

### **GUARANTEE**

Our general terms and conditions apply to the guarantee and warranty.

Changes in line with technical innovation reserved.

### INSTRUCTIONS FOR DISPOSAL

At the end of the machine's service life:

- $\Rightarrow$  Remove the mains lead plug.
- $\Rightarrow$  Cut through the mains lead.
- ⇒ Take the machine and the mains lead to your local electrical appliance recycling collection point.