COMERCIAL BENOIT LIMITADA www.dog.cl





DIAPHRAGM PUMP



USE AND MAINTENANCE MANUAL



MAINTENANCE

Safety instructions The dispensing system was designed and built to require a minimal

amount of maintenance

Before carrying out any maintenance work, disconnect the dispensing system from any electrical and hydraulic power source. During maintenance, the use of personal protective equipment (PPE)R compulsocy.

In any case always bear in mind the following basic recommendations

for a good functioning of the pump

Authorised maintenance All maintenance must be performed by qualified personnel. Tampering can lead to performance degradation, danger to persons and/or property and may result in the warranty being voided.

Personnel

Whenever there is risk of frost, emptythecircuit and the pump, taking Measures to be care to place the pump in an environment where the temperature is no lower tha 0 °C/32 °F.

taken

Check that the labels and plates found on the dispensing system do not deterlorate or become detached over time.

ONCE A WEEK:

-Check that the pipe connections are not loose to prevent any leaks; Check and keep the filter installed on the suction line clean.

ONCE A MONTH:

-Check the pump body and keep it clean and free of any impurities;

Check that the electrical supply cables are in good condition.

Long periods without the pump being

Whenever it is thought that the system will remain unused for at least 15 days, it must be emptied in order to prevent the product from crystallising inside. This shall be followed by a washing cycle.

used

ENGLISH

To the customers

Congratulations on receiving your Combo Pump. We are Pleased to Provide you with a system designed to give you maximum reliability and efficiency.

The pump has been designed, tested, and approved for use with AUS32.

Please take care of all the precautions when handling this liquid.

Your safety is important to us.

Furthermore to assure the longest possible service life, it is Important that you follow the operation and maintenance Procedures outlined in this manual.

We are proud to provide you with a quality product and dedicated support. Together with your careful use, we are sure that you will have years of safe and dependable use.

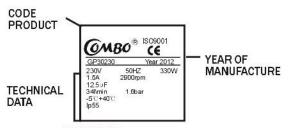
> The President Combo Power Group

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2 MACHINE AND MANUFACTURER **IDENTIFICATION**



AVAILABLE MODELS: 120/230VAC MANUFACTURER:

IF THE PUMP DOES NOT PRIME

Depending on the system characteristics, the priming phase can last from several seconds to a few minutes. If this phase is prolonged, stop the pump and verify:

- that the pump is not running completely dry (fill with

fluid from the delivery line);

that the suction pipe guarantees against air infiltration;

that the suction filter is not clogged;

that the suction height is not higher than 2 mt.

that all air has been released from the delivery pipe.

AT THE END OF THE INI-TIAL START-UP

When priming has occurred, verify that the pump is operating within the anticipated range in particular:

- that under conditions of maximum badk pressure the power absorption of the motor stays within the values shown on the identification plate;

- that the suction pressure is not greater than 0.5 bar;

- that the delivery back pressure does not exceed the maximum back pressure for the pump.

13 EVERY DAY USE

USE PROCE-DURE

- If flexible pipes are used, attach the ends of the piping to the tanks. In the absence of an appropriate slot, solidly grasp the delivery pipe before beginning dispensing.
- Before starting the pump make sure that the delivery valve is closed (dispensing nozzle or line valve)
- Turn the ON/OFF switch on
- Open the delivery valve, solidly grasping the pipe
- While dispensing do not inhale the pumped product
- Should you spill any fluid while dispensing bank it with earth or sand to absorb it and limit its spreading
- Close the delivery valve to stop dispensing
- When dispensing is finished, turn off the pump

ATTENTION



The by-pass valve allows functioning with delivery closed only for short periods(max.3 minutes)

To avoid damaging the pump, after use, make sure the

In case of apower break, switch the pump off straight

Should any sealants be used on the suction and delivery circuit of the pump, make sure that these products are not released in side the pump.

Foreign bodies in the suction and delivery circuit of the pump could cause malfunctioning and breakage of the pump components.

In case of prolonged dry-running of the pump, the suction circuit may be empty and suction may become difficult. If so, fill the suction circuit with demineralised water

INSPECTION

PRELIMINARY - Before connection make sure that the piping and the suction tank are free of dirt and solid residue that could damage the pump and its accessories

 Before connecting the delivery pipe, partially fill the pump body, from delivery side with the liquid that needs to be pumped in

order to facilitate priming.

 Do not use conical threaded fittings, which could damage the threaded inlet or outlet openings of the pump if excessively tightened

NOTE



If not already fitted. fit a suction filter



12 INITIAL START-UP

FOREWORD

- Check that the quantity of fluid in the suction tank is greater than the amount you wish to transfer.
- Make sure that the residual capacity of the delivery tank is greater than the quantity you wish to transfer.
- Make sure that the piping and line accessories are in good condition

ATTENTION



Do not run the pump dry for more than 20minutes. This can cause serious damáge to its components. Fluid leaks can damage objects and injure persons.

NOTE



Never start or stop the pump by connecting or cutting out the power supply.

Prolonged contact with some fluids can damage the skin. The use of goggles and gloves is recommended.

ATTENTION



Extreme operating conditions with duty cycles longer than 20 minutes can couse the motor temperature to rise thus damaging the engine. For each duty cycle of 20 minutes, allow for a rest phase of 20 minutes with mo-

NOTE



During the priming phase the pump must discharge all the air that is initially present from the delivery line. There-fore it is necessary to keep the outlet open to permit the evacuation of the air.

WARNING



If an automatic type dispensing nozzle is installed on the end of the delivery line, the evacuation of the air will be difficult because of the automatic stopping device that keeps the valve closed. It is recommended that the automatic nozzle be temporarily removed during initial start-up.

3 MACHINE DESCRIPTION

PUMP: Five-chamber positive displacement diaphragm pump. MOTOR: Asynchronous motor single-phase 2 pole closed type protection class IP55

HANDLING AND TRANSPORT

Due to the limited weight and dimensions of the pumps special lifting equipment is not required to handle them. The pumps are carefully packed before dispatch. Check the packing when receiving the material and store in a dry place.

4 **GENERAL WARNINGS**

Important precautions

Symbols used

in the manual

To ensure operator safety and to protect the pump from potential damage, workers must be fully acquainted with this instruction manual before performing any operation.

The following symbols will be used throughout the manual Tohighlight safety information and precautions of particular importance:

ATTENTION



This symbolindicates safe working practices for operators and/or potentially exposed persons.

WARNING

This symbolindicates that there is risk of damage to the equipment and/or its components.



NOTE

This symbolindicates useful information.

Manual preservation

This manual should be complete and legible throughout it should remain available to end users and specialist installation and maintenance technicians for consultation at any time.

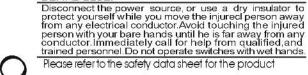
5 **FIRST AID RULES**

Contact with the product

In the event of problems developing following EYE/SKINCONTACT, INHAL ATION or INGESTION of the treated product, please refer to the SAFETY DATA SHEET AUS32/

Persons who have suffered electric shock

NOTE



6 **GENERAL SAFETY RULES**

Essential protective equipment characteristics

Wear protective equipment that is:

- suited to the operations that need to be performed:
- resistant to cleaning products.

Personal protective equipment that must be worn



Safety shoes:



close fitting clothing;



protection gloves;



Safety goggles;



instructions manual

Protective gioves



Prolonged contact with the treated producr may cause skin irntation; always wear protective gloves during

DANGER



Never touch the electric plug or socket with wet hands. Do not switch the dispensing system on if the network connection cable or important parts of the apparatus are Damaged, such as the inlet/outlet pipe, nozzle or safety devices. Replace the damaged pipe immediately.

Before each use check that the network connection cable and power plug are not damaged Have the network connection cable replaced immediately by a qualified electrivian.

ATTENTION



The electrial connection between the plug and socket must be kept well away from water.

Unsuitable extension leads can be dangerous. In accordance with current regulations, only extension cords that are labelled for outdoor use and have a sufficient conduction path should be used outdoors.

For safety reasons, we recommed that, in principle, the equipment be used only with a earth leakage circuit breaker (max 30 mA)

CONNECTIONS

ELECTRICAL CONNECTIONS

ATTENTION



IT IS THE INSTALLER'S RSEPONSIBILITY TO CARRY OUT THE ELECTRICAL CONNECTIONS IN COMPLI-ANCE WITH THE RELEVANT STANDARDS.

WARNING



Comply with the following (not exhaustive)instructions to ensure a proper electrical connection:

- During installation and maintenance make sure that power supply to the electric lines has been turned off.
- Use cables with minimum sections, rated voltages and installation type that are sultable for the characteristics indicated in paragraph
- I-ELECTRICAL DATA and the installation environment.

 Always make sure that the cover of the terminal strip box is dosed before switching on the power supply, after having chedced the integrity of the seal gaskets that ensure the lp55 protection grade.

 All motors are equipped with a grounding terminal that is to be connected to the ground line of the electrical system.

PUMP FITTINGS

- The pump is fitted with:
 single-phase motor with 2-mt.power cord
- bipolar switch
- capacitor

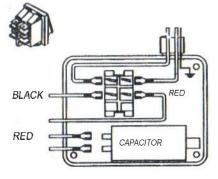
Wired and installed inside the terminal strip box(see chart)

NOTE



The capacitor characteristics are those indicated on the pump label. The switch has the only function of starting stopping the pump and cannot in any way reptace the man power switch required by the relevant standards.





PIPING CONNECTIONS

FOREWORD

Before carrying out any connection, refer to the visual indications i.e.arrow on the pump head, to identify suction and delivery.

ATTENTION



Wrong connection can cause serious pump damage.

ELECTRICAL DATA

PUMP MODEL		CURRENT		
. own model	Current	Voltage(V)	Frequency(HZ)	Max(*)(A)
120V version	AC	120	60	3.5
230V version	AC	230	50	1.5

^(*)Refers to functioning in by-psaa mode

OPERATING CONDITONS

ENVIRONMENTAL CONDITIONS

TEMPERATURE

Min.+23°F/max+104°F min.-5°C/max+40°C

RELATIVE HUMIDITY

Max 90%

LIGHTING

The environment must conform to directive 89/654/EEC

on work environments.

In case of non-EU countries refer to directive ENISO

12100-2 § 4.8.6.

ATTENTION



The temperature limits xhown opply to the pump components and must be respected to avoid possible damage or maifunction.

2 ELECTRICAL POWER SUPPLY

NOTE



The pump must be powered by AC single-phase line, the nominal values of which are indicated on the table in the paragrapl, "G ELECTRICAL DATA"

The maximum acceptable variations from the electrical

parameters are;

+/- 5% of the nominal value Voltage: Frequency: +/-2% of the nominal value

ATTENTION



Power supply from lines with values that do not fall within the indicated limits could cause damage to the electrical components.

(3) **DUTY CYCLE**

NOTE



The pumps have been designed for intermittent use and a 20-minute duty cycle under conditions of maximum back

ATTENTION



Functioning under by-pass conditions is only allowed for short periods of time (max.3 minutes).

4 PERMITTED AND NON-PERMITTED FLUIDS

FLUIDS

- AUS32 (DFF,AD-Blue); DIESEL, OIL
- PERMITTED
- WATER

- LIQUID FOOD PRODUCTS

FLUIDS NON

- PETROL

OXIDATION OF PUMP

PERMITTED AND

- INFI AMMABLELIQUIDS

RELATED

EXPLOSION

DANGERS

- CORROSIVE CHEMICAL PRODUCTS

- CORROSION AND INJURY TO

- SOLVENTS

PERSONS

- LIQUIDS WITH VISCOSITY>20 cst

DAMAGE TO GASKET SEALS

MOTOR OVERLOAD

6

10 INSTALLATION

ATTENTION



The pump must never be operated before the delivery and suction lines have been connected.

PRELIMINARY INSPECTION

Verify that all components are present. Request any missing parts from the manufacturer.

 Check that the pump has not suffered any damage during transport or storage.

Carefully clean the suction and delivery inlets and outlets, remov-

ing any dust or other packaging material that may be present. Check that the electrical data corresponds to those indicated on the data plate.

- Always install in an illuminated area.

Install the pump at a height of min.80 cm.

PSSITIONING CONFIGURATIONS AND ACCESSORIES

NOTE



In the case of installation in the open air proceed to protect the pump by providing a protection roof.

The pump can be installed in any position (pump axis vertical or horizontal)

The pump must be secured in a stable way using the holes on the bed of the motor and vibration damping devices.

ATTENTION



THE MOTORS ARE NOT OF THE ANTI-EXPLOSIVE-TYPE. DO NOT install them where inflammable vapours could be present.

NOTE



The broad range of pump accessories make it suitable for many different uses, installtions and applications. The supporting base can be positioned in different ways.

NOTE



The pump can be installed in any position (pump axis vertical or horizontal)

ATTENTION



It is the ressponsibility of the installer to provide the necessary line accessories to ensure the correct and safe operation of the pump. The accessories that are not suitable to be used with the previously indicated material could damage the pump and/ or cause injury to persons, as well as causing

ATTENTION



Pointaximise performance and prevent damage that could offect pump operation, always denmand original accessories





② NOTES ON SUCTION AND DELIVERY LINES

DELIVERY

EFFECTS FLOW RATE

ON Length and diameter of pipe, flow rate of dispensed liquid, accessories fitted, can create back pressures above those allowed,

In this case, the pump mechanical control(bypass) will trip to reduce the flow rate.

HOW TO REDUCE

EFFECTS ON FLOW RATE

To avoid these problems, system flow resistances must be reduced using shorter and/or larger diameter pipes, aswell as line accessories with low resistanced (e.g., automatic nozzle for higher flow rates).

CHARACTERISTICS OF **DELIVERY PIPES**



The delivery pipe must have the following technical characteristics:

recommended minimum nominal diameter:3/4"

recommended nominal pressure: 10 bar

SUCTION

FOREWORD

Diaphragm positive-displacement pumps are self-priming and feature good suction capacity.
During the start-up phase when the suction pipe is empty and the pump is wet, the electric pump unit is able to suck liquid from a maximum vertical distance of 2mt.

IMPORTANT NOTE



Priming time can last a few minutes. We suggest performing priming operations without automatic nozzle and making sure the pump is properly wet.

WARNING



Always install a foot valve to prevent the suction pipe from being emptied and to keep the pump wet at all times. In this way, the pump will always start up immediately the next times it is used.

CAVITATION

Te pump is able to work with vacuums of up to 0.5 bar at the suction mouth. Over this value, CAVITATION can occur that causes a fall in flow rate and increase in noise levels.

HOW TO PREVENT CAVITATION

It is important to ensure low vacuums at suction mouth by using:
-short pipes with larger or identical diameter to that recommended
-reduce bends to the utmost
-use large-section suction filters
-use foot valves with minimum possible resistance
-keep the suction filters clean because when they become clogged,
they increase the resistance of the system.

WARNING



The vertical distance between the pump and the fluid must fall within the 2 mt.maximum required for priming. If the distance is greater a foot valve must be installed to allow the suction pipes to fill up and the diameter pipes must be larger. It is recommended that the pump not ge installed at a vertical distance greater than 2 meters.

ATTENTION



If the suction tank is higher than the pump, an anti-siphon valve should be installed to prevent accidental product leaks. Size the installation to contain the back pressvres caused by water hammering.

ATTENTION



It is a good system practice to immediately install vacuum and air perssure gauges at the inlets and outlets of the pump which allwo verification ghat operating conditions are within anticipated limits. To prevent the suction pipes from being emptied when the pump stops, a foot vaive should be installed.

CHARACTERISTICS OF THE SUCTION PIPES



The suction pipe must have the following technical specifications:

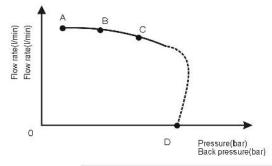
- recommended minimum nominal diameter.3/4":
- recommended nominal pressure:10 bar;
- use pipes suitable for low pressure operation (e.g-with metal core)

TECHNICAL DATA

PERFORMANCE SPECIFICATIONS

The performance diagram shows flow rate as a function of back pressure.

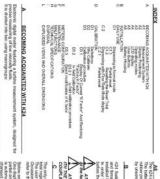
				Typical Delivery Configuration			
Functioning Point	Flow Rate	Voltage(V)	Absorption(A)	No.4 metres of3/4 pipe	FM30 Meter	Manual nozzle	Automatic Dispensing Nozzle
Α	28	120	3.1			- 8	
(Maximum flow rate)	32	230	1.2	1 *		•	
В	27	120	3.2	28/30	81	265	
(High flow rate)	31	230	1.3	1 *	•	•	
С	25	120	3.3		62		
C (Normal conditions)	29	230	1.3	1 •			•
D	_	120	3.3	Delivery closed		i Decreases	
(By pass)	0	230	1.3			y closed	



5







With body make of inconduction listatic material of light colour, grade to be used with switch or conduction is about material of dark colour assed installance. So chin), dissigned to be used with DIESEL FUEL. ER and withstraces fusion. nd can be related with respect to its housing, thus allowing easy display is nany position. The card housing, easyl accessible, is observed by a statetic saled frough a rubber protection anding as a gaster ta wall. Then whole until easily removed by unscrewing the 4 screws fishing the card and the cover; easily removed by unscrewing the 4 screws fishing the card and the cover.

and system. The furthine is placed inside a hole through the with threaded rised and outsit. The body of kG4 is made of a adlose serveral bytes of threads with relevant conditionations, elections, designed to act as paskets, too, and thus reducing



ATTENTION
While firing the K24 card, make sure the bit above the circular housing of the bulb. The square shape of the KA4 body allows the card to be rotated in its housing hus onsuring great versatility in positioning.

minder deatheres a non-violatile memory for aloning the dispensing data, even so event of a correlate power breast for loop periods. measurement electronics and the LCD display are stitled in the top part of X24 which remains lookated from the fluid-with measurement chamber and ded from the catalot by memora of a cover. Operating modes

Operating modes

r can choose between two different operating modes:

Node: Mode with display of Partial and Total dispensed quantities,

land Mode: Mode with display of Flow Rate, as well as Partial dispense

Ad ICD display
The "CO" of the METER
features two numerical registers
and various indications i
displayed to the user only
when the applicable function so

or of leating, draups;
or of callet planes,
or of callet planes with moving owners FROM 0.1 to
volypier of Touth and connect be most (TOTAL.)
General Touth and connect be most (TOTAL.)
or throatelier leaf (Income 10 TOTAL.)
or of the of the first (TOTAL.) Touth (TOTAL.)
or of the of the moviment of Totals. (Lauface David
or of the of the moviment of Totals.)

at: Ots-Quarts
Pts-Pints
L=Litnes
Gal-Gallens

rois and, together, offer incondary functions.

som handbook pediction of and and the partial regular and resettable local
free that usual key, resetting the partial regulars and resettable local
free that usual key, resetting that the calculation mode.

For the calcular, reserving materianed calculation mode, usuals for
free that the reseasurements and calculation factors. tand call which individually perform two main indary functions.

Road by a metal cover sociod Brough a.
The whole unit can be easily removed and the protection to the body.

features a threaded, perpendicular intel an feature that care be consistend together). If he field in any position; foud in-line or mobile on due to improve the life of the turbine, it is n no the metor itself. nd outlet (1" gas or ntp male a last been designed to be easily as dispensing recole.

ITH THE GAS-FENALE INLETS, DO NOT COUPLINGS. ATTENTION At the female inlets, digitien the co-

or research. Roual uso only the dispensing system of k24. By the meter may need to be configured or calibrated. To do so, please

D1 Definitions
Calendon factor of Kindon*
Maligication factor applied by the system to the franctorm those into measured fluid units.

CALIBRATION

12.345 on PARTIAL register -TOWN WITH THE PARTY TOWN 神 575.345 1 53

FACTORY, RACTORY.

FACTORY IS RECIDENT IN equal to 1,000. This calibration in Floatory-set default factor.

Limited processor in the believing operating conditions:

Limited processor in the believing operating.

Temperature:

207.

Facility and Part of the Control of the Con

WOTE: 6 digits are available for Totals, plus two icons: x 10 / x100. The increment sequence is the following: 0.0 → 999985 → 100000 x 10 → 999999 x 10 → 100000 x 10 → 999999 x 100 loans x 10 / x100. The

USER K FACTOR: Customized calibration factor,

C1 Dispensing in Normal mode. Normal mode is the standard disponsing. While the court is mode, the period and resolution total are displayed at the same time (meet total). outsi one of the lays be accidentally present during penning, this will have no effect. We accords after disponsing that embed, on the few accords after disponsing that embed, on the are register, the display switches from resolution at the general test; the week resent active the week at league one, and the meet total is replaced by the next feat. SHEZO SHE ST

D3 Calibration procedure: X24 permits making quick and precise decirclic calibration by changing the calibration factor (it factor).

After pressing the least key, during reset, the display screen first of all shows all the lit-up digits and then all the digits that are not fit up. The partial register can be reset by pressing the reset key when the moter is in standay, meaning when the display screen shows the word "TOTAL". 88888 ShERI

and, after a few moments the non resettable Total. D.DOD S 0.000 o

D3.1

Display Of Current "K Factor" And Restoring "Factory" K

π you are using K24 with "factory it factor" the display page shown in the disgram will be displayed, with the word "Fact". By pressing the call key while the appliance is in standby, the display page appears showing the current calibration factor used.

The reset total resetting operation can on porformed after resetting the portial register. The total can in fact be reset by preseing the reset length while the disclay across shows reset total the following display page: White the display page showing the reset displayed Press the reset key again for at least 1 second The display screen epain shows all the segments of the display individed by all the aviditiod-off segments and finally schools the display page where the resett Reset Total is shown. 2. Press the reset key quickly 3. The meter starts to reset the partial Wait for the display to show normal stands page (with total only displayed). 1000 P 0.000 ShER. 0.000 If one "user k factor"has been set, the celetration factor set by the user (in our example 0.566) will be displayed. The word "user" indicates a calbration factor set by the user is being used.

C.2 Dispension with flow Rate Mode display.
It is possible to despresse flows, deplaying at the same time.
The dispensed parts deplaying at the same time.
The Flow Rate in [Persist Unit / Invited]
as shown on the belowing display page: Sheez

- contain by entering his mode:

- wait for the Armole Display to go to Standby, m.
shows Trial early
- guidely press the CAL key.

Stant Reporting 1.

The from rish is uposited every if 7 among the contains a property press of the contains and the contains a position of the contains a posi dated every 0.7 seconds. Consequently, the display could be at lower flow rates. The higher the flow rate, the more stable

ABPORTANT

The fore rate in manufactured with inference to the unit of measurement of the The fore rate in manufactured in the case of the parts. For this mason, in case of the auth of measurement of the Thetal and Tools hading different, as in the example shown below, it should be remembared that the indicated flow rate natives to the unit of measurement. PO ShE'SI

MPORTANT
Even though in this mode they are not displayed, both the Reset Total
and the General Total (Total) Increase. Their value can be decided after
dispensing that seminated, returning to 'Homes' mode, by quickly,
pressing Chit. of the partial. In the example shown, the flow rate is expressed in Qtsimin. The evoid "QAL" remaining alongside the flow rate refers to the register of the foots (fleet or NOV fleet) which are again displayed when earling from the flow rate reading mode. o return to "Normal" mode, press the CAL key again. If one of the two keys ESET or CAL is accidentally pressed during the count, this will have no effect.

Superior guest he level of the fluid in the sample wached the griduated area. There is no need to p parelly. 9.800 0,000 1000 1000

C.2.1. Partial reset
To reset the Perial Register, frish disponsing and wait for the Renete Display
to show a Flow Relate of Q.D as indicated in the illustration
then quidely press RESET.

See .

SHORT RESET REVIEWED that the collection deposing operation but the collection deposing operation and the collection deposing operation and deposing operations of the collection operation operati 9.800

pet of the display as array appears (speed TWAT 390WS the desictor (increase USER K FACTOR value charge when 3.800 e.

22 Why California When contributions to extreme conditions, such as tor instance with fluids of codes to acceptable range estimates (the diseal fluid allow interpretatures) or in extreme flow rate conditions (double instances or instantian conditions valued), in on-site cultivation may be required to sust the real conditions in which the VS is required to operation. SHOPELONG CALL AND A SEASON SHOWN BY THE SHOPE AND A SHOPE CALL AND A SHOP 09815

WARNING
The KA features a non-violatile memory.
It is a possible calculation and dispensing data stored even after new batteries or long periods of inactivity. There are 2 different ways of calibration:

1. On-site calibration, performed by means of a dispensing operation.

2. Direct calibration, performed by directly changing the k factor. hy oriter the calibration phases? Dayslay ha currently used calibration factor Dayslay ha currently used calibration factor both or known to Rotum to factory it knoter after a provious calibration with user it factor Change the calibration factor using one of the two previously indi-posedures. urgo se carcasco accer using one of the two previously ensulated dures.

Bradien mode, the partial and hold dispersed quantities indicated on sigkly screen take on different insamings according to the californism skiller phase. During the distinction, the KSI cannot perform any normal skiller phase. During the distinction mode, the folials are off informated. of the calculation, the new USER K FACTOR is a few seconds, after which the restart cyclo is 3 feasily achieve standby condition. 3 feasily achieve standby condition. 3 Feasily achieve standby condition will become from factor used by the meter and will condition to new cellbridge factor and in ready applying the newly defined USER K FACTOR. 0.000 Sign

of several performed deponency operations. If normal YQ4 operation powerhage error, this can be connected by applying to the carrierity before a correction of the same personlage, in this cause, the present of the USER X-FACTOR must be calculated by the operator in the

Example:
Error percentage found E%
CURRENT calibration factor
New USER K FACTOR Nov K Factor = Old K Factor* (100 - E%)

ST FRCT 0.998

If the meter indicates less than the real dispensed value (negative error) the new calibration factor must be higher than the old care as shown in the example. The opposite applies if the meter shows more than the real dispensed value (positive error). 1,000 1,000 [[100 -(-0.5])/100]= 1,000 [[100 + 0.5]/100]= 1,000 [[100 + 0.5]/100]=

Cal USER

The flow chart alongside each to show the switchow right from one display page to a softer condition, the Reset to the population of the Condition the Reset to the population of the Condition that the population of the Condition of the Conditio To confirm the choice of Cashmillon floctor, quickly press CAL, while "user or "hot" are displayed. After the restart cycle, the meter uses the calibration factor that has just been portimed. long RESET short RESET long CAL short CAL Time Out 2395 e 963 Ond RESET REY KEYING

We now 20 on to been drawing of the undersides figure
a proof the property to the property to a common the property to the property to the property to the property of t

mode, shows "CAL" and displays the used instead of the partial. The words are which of the two factors (factory or

1000

12.3-5 op 1000

• considering distinuits as if nom the systems before califerating;
• considering distinuits as from the systems before califerating;
• considering problement before,
• continuits as excessed gradiented instead;
• constantinuits are considered instead;
• contractificarente experiented are contractificarente experiented as the contractificarente experiented as the contractificarente experiented as the contractificarente experiented as the contractificarented as the contractificarent as the contrac WARNING For correct K24 calibra

IN OPERATORS

All the word of the controllation, the same sight in FACTOR in an and of the controllation in the same of the controllation in the contr

EDD1

0000

QNO RESET KEY KEYING

QN is informed that the calibration procedure is finished.

Solve performing this operation, make sure the indicate

rable is that required. HORFILONG OIL KEY KEYING:
"In included one sharper in the disection included by the amove one until for every store CAL has leaving or contendly if the CAL has leaving or contendly if the CAL has in large precised. The special contends for the great precised, the disched value is consisted, in practite operations from point (5).

1003 °

D00

kQ4 has been designed to require a minimum amount of mainte. The exit types of maintenance required are the 'diowing.' I. Battery change necessary when the batteriet have no fowe 2. Cleaning of the furthers with washing or mechanically-handling. MAINTENANCE

Battery Replacement
 424 is complete with 2 x 1.5 V. alkaline batteries SIZE AAA
 424 features two low-battery alarm lovels:

in this condition, <24 continues to operate corodily, but the fixed loco warms the user that it is ADVISABLE to change the batteries. When the battery charge falls below the first level on the LCD, the fixed battery symbol appears. 12.345 a

Do not discard the old batteries in the environment. disposal regulations. Refer to loca

The X24 will display the same Reset Total, the same Total and the Partial indicated before the batteries were changed.

After changing the batteries, the meter does not need calibrating again.

DOOT P

Save the new combenion by pressing the cal key at length. K2 rough the start-cycle and will then be rough to dispose in the setu Utility on the setup of the start cycle and will then the rough to dispose in the setup Utility on the setup of the setup o models of meter feature a menu with which the use rencent unit, Quarts (Ots), Pints (Pis), Jims (Lil), Gas rebeation of the unit of measurement of the Partial in is probletinal according to the fellowing list in: Stantly,
RESET lays together, Koop these pressed
the screen together with the unit of measure
Uthes / Litres)
to select the desired combination of unit of

WARNANG
The Resettable Total and Total registers will be automatical to the new unit of measurement. No new calibration is a clarency graph up the of the susception.

2) if XG4 operation continues without changing the batteries, the second battery alarm level will be reached which will prevent operation. In this condition — the battery loon starts to flash and is the only and to grown visible on the LCD. *

To change the batterias, with reference to the exploided diag-proceed at follows:

- Press RESET to spoke all the botals

- Locent the 4 fixing persons of the lower ower

- Ramove the old batterios

- Place 596 new batterios in the same position as the old ones

- Coda the cover again, for positioning the nibble proceders as

- Cod will whith on a develocationally and normal operations our

- Cod will what the contentionally and normal operations our

WARNING:

Do not use compressed air onto the I
because of an excessive rotation

q	9		P		P	o	AY
but the flow rate is	The meter does not count,	Reduced or zero flow rate	precision	Not enough	LCD: no indication	Problem	G. MALFUN
Possible electronic card	poers after cleaning	TURBINE blocked	The meter works below michnum acceptable flow rate.	Wirong K FACTOR	Bed bettery contact	Possible Cause	MALFUNCTIONS
Contact your dealer	Repeat the massembly procedure	Clean the TURBINE	Increase the flow rate until an acceptable flow rate range has been achieved	With reference to peragraph H, shock the K FACTOR	Check bettery contacts	Azione Correttiva	

TECHNICAL SPECIFICATIONS

AFM30

METERS CONFIGURATION

lations (Gal);	register and that of the	Rangiator Unit of	Register (Call)	Gallors (Gall) Gallors (Gall)
violation or a years	Resolution	(nominal)	Flow Rate (Range)	
ayaacra .	HIFlow	Low Flow	KON COL BLACK Flow- rates:	BEIGE Flow
TORDINE	0.010 Rhpulse	0.005 lithrate	5 4120 (Utreshi	5 +100 (Litrosimin

anco		y changed quired after			£	11 Oct		24 will pass	
Salurina	Battery life	Power Supply	Screen	Reproductivity	Accuracy	Viscosity (Range	Flow resistance	Operating tempera	Storage humidity.
				(Typical)		9		sture (Range)	(Max)
O St. Vin American	18 + 36 months	2x1.5 V alkaline be	Liquid dystals LCC - 5-figure partial - 6-figure Reset To 6-figure non reset 1	±0,3 (%)	±1% after calibrat 10÷90 (lätesimin min) range	2+5.35 cSt	0.30 Bar at 100 lb	-10 ++ 50 (°C)	95 (% RU)

69	enance.			ally changed required after		£
Protection	Weight	Battery life	Power Supply	Screen	Reproducibility	Accuracy
					(Typical)	
5	0.3	18	2	2555	H	1.dt

The components must be given to companies that specialise in the disposal and recycling of industrial waste and, in particular, the

DISPOSAL OF METAL COMPONENTS

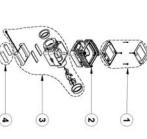
The metal components, both painted and stainless steel by companies that are specialised in the metal-scrapping

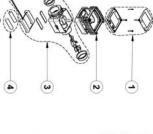
DISPOSAL OF ELECTRIC AND ELECTRONIC COMPONENTS: these have to be disposed by companies that are specialised in the of disordronic components, in accordance with the instructions of 200 of

ENVIRONMENTAL INFORMATION FOR CUSTOMERS IN THE EUROPEAN UNION barroam Deretina 2002/80EC resparse that the outperment bearing its amptical on the procedul entire its producing metal and the procedul metal of the producing metal. The symbol procedul proce

DISPOSAL OF OTHER PARTS:
The disposal of other parts such as pipes, nabber seals, plantic components and cathos should be enhanted to companies that special in the disposal of industrial wants.

L EXPLODED VIEWS AND OVERALL DIMENSIONS





ELECTRONIC TURBINE METER



USE, MAINTENANCE AND CALIBRATION MANUAL

