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# MAINTENANCE AND USE BOOK

## CHOPPING EMULSIFYING VERTICAL-AXIS PUMPS SERIES SUPER



ME 60



ME 80



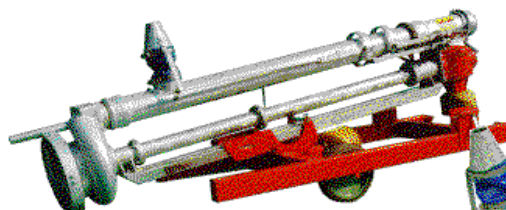
Special 120



ME 100 con Carrello



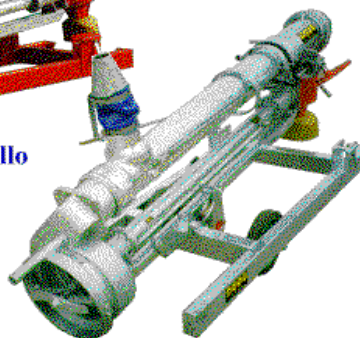
ME 120 con Attacco a Muro



Super 150 con Carrello



Super 120 con Carrello



Super 200 con Carrello

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**Data and measures written in this catalogue are approximate and there will be some changes without previous advice.**

DODA thanks you for having bought an item of its production range and invites you to read this manual.

In it you find all necessary information for the correct use of the machine bought.

Therefore we recommend you to read it wholly and follow all instructions contained in it.

Furthermore please keep it in a suitable place, so that it could remain unaltered.

The content of this manual can be changed without notice or additional obligations, in case changes or improvements to the units already delivered could be necessary.

It is forbidden to copy or translate any part of this manual without previous

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EC CONFORMITY DECLARATION ACCORDING TO DIRECTIVE  
2006/42/EC AND FOLLOWING MODIFICATIONS.

# 1. INTRODUCTION

The machines described in the following "USE AND MAINTENANCE" booklet is a chopping, emulsifying,.

These pumps are employed for managing thick and/or non-homogeneous manure.

They are provided with the following devices:

- double chopping system realized with blades, counter-blades, rotor, counter-rotor;
- Flow-back pipe enabling the homogenizing of the treated substance by means of a revolving nozzle;

Manufactured in various models with varied performance and power absorption, they are supplied in the following versions: with Cardan joint, powered by electric or hydraulic motors.

The galvanised structure, the oil-bath drive system and the high quality of materials used assure the machine high durability and simple maintenance.

From the technological point of view, the concept adopted for all other DODA products has been applied to this machine as well:

**" Highest quality for highest reliability and longest service life ."**

- |  |                      |
|--|----------------------|
| 1) Trolley for SUPER 120-150 - 200                   | 11) Spacer from soil |
| 2) Speed-reduction gear                              | 12) Pump body        |
| 3) Manual/hydraulic/electric) cone orientation winch |                      |
| 4) Delivery pipe                                     |                      |
| 5) Adjustable mixing cone                            |                      |
| 6) Handle for cone vertical orientation              |                      |
| 7) Handle for butterfly valve opening and closing    |                      |
| 8) Drive line pipe                                   |                      |
| 9) Three point connection                            |                      |
| 10) Tightening pin                                   |                      |

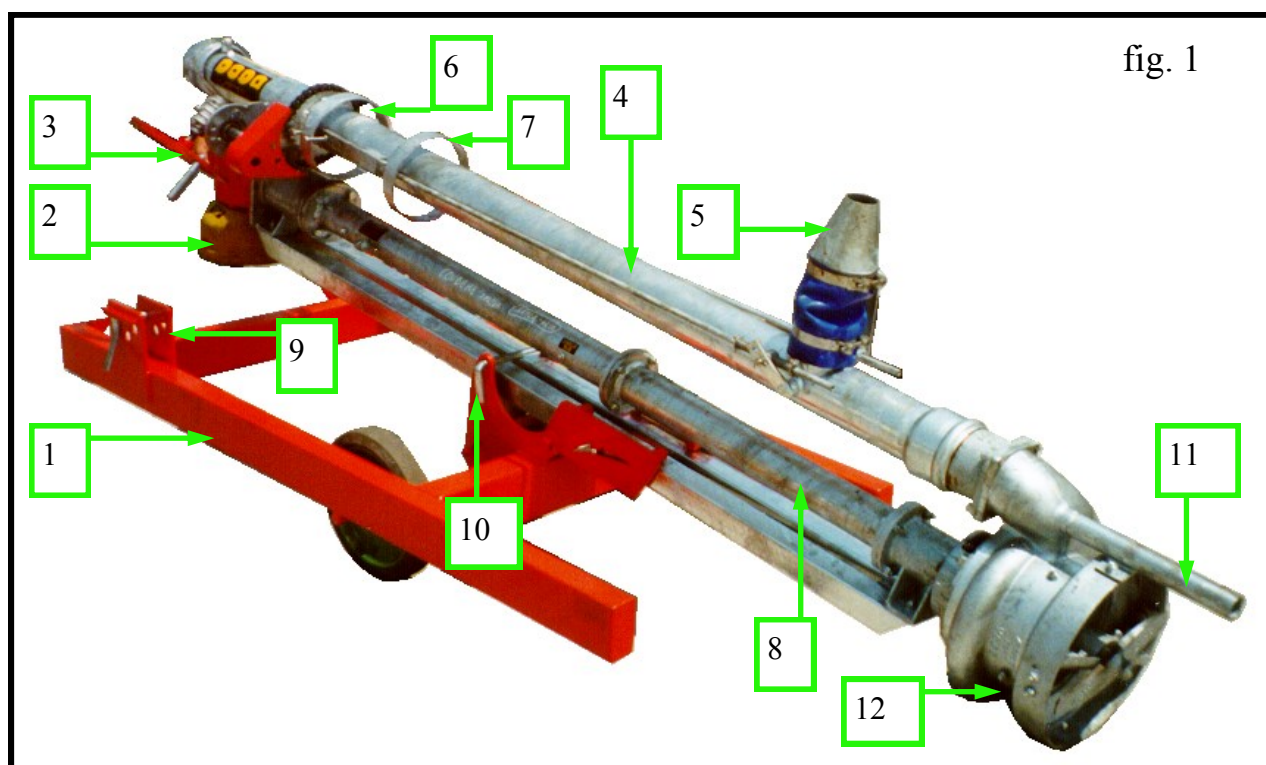




fig. 2

**SUPER PUMPS:**  
driven by PTO

**SUPER ME PUMPS:**  
Driven by electric motor



fig. 3

## 2. MACHINE LOADING AND UNLOADING

The machine loading and unloading operation can be carried out:

- by means of a lift truck;
- by means of a hoisting crane.

**N.B.:** the carrying capacity of the sling must be seven times as much as the machine total weight (if it is made of a textile fibre).

**WARNING:** in either case the machine must not be lifted by catching on the weakest parts of the structure (delivery pipes, etc...).

**WARNING:** before lifting the structure, be sure that it is well-balanced.

**WARNING:** never move abruptly or bump stainless steel parts with the forks of the lift truck.



fig. 4



fig. 5

- 1) Check that no component has been damaged during transport, in this case contact immediately our dealer.
- 2) The power supply connection has to be carried out only by skilled workers and according to DODA instructions (by connecting the cables of the electric motor to the power supply or the pump to the tractor by means of the cardan shaft). DODA is in no way responsible for any electric connection. (please follow the instructions on the motor plate and on the sticker showing the rotation direction).
- 3) Before starting the machine, check that the rotating driving parts are suitably protected, as foreseen by their manufacturer.
- 4) If the protection of a rotating component is not provided, the user has to supply the machine with it in conformity with the provisions of the law.
- 5) DODA has no responsibility for modifications which could alter the characteristics of the machine bought.
- 6) DODA machines must not be installed on structures not consistent with EC safety regulations foreseen by the Community Directives.
- 7) Before operating the machine it is indispensable to read carefully all directions in the **“Use and Maintenance”** manual. Above all, you have to be sure to have completely understood the machine functioning.
- 8) The machine is designed for the treatment of water and slurry, but not of chemical products. Therefore if these substances are treated with our machine, it could be damaged permanently.
- 9) Check that the machine length is adequate to the depth of the tank.
- 10) As regards machines with oil-bath driving, the driving pipe as well as the geared units (if presents) must be filled with oil.
- 11) Carefully avoid that during mounting, machine rubber parts come into contact with oil, grease or oil derivatives.

## 4. PRELIMINARY CHECKS

page 4

Our machines are supplied without lubricating oil either in the driving pipes or in the geared units. Before starting the machine, fill in the lubricating oil:

unscrew inlet and vent caps;

- fill up with SAE90 oil very slowly according to according to the oil quantity indicated in oil quantity tables;
- wait at least 3 hours before checking the oil level (ONLY FOR DRIVING PIPES);
- close caps.
- Check oil level periodically: it has never to be beyond the indicated level.

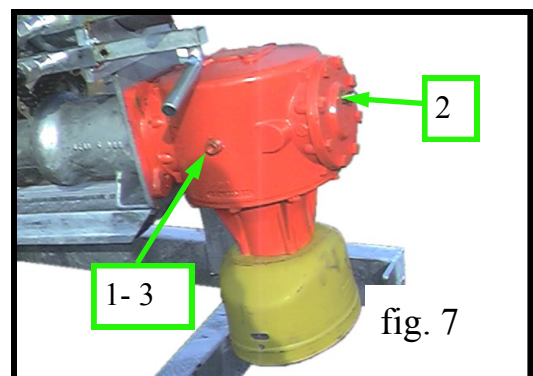
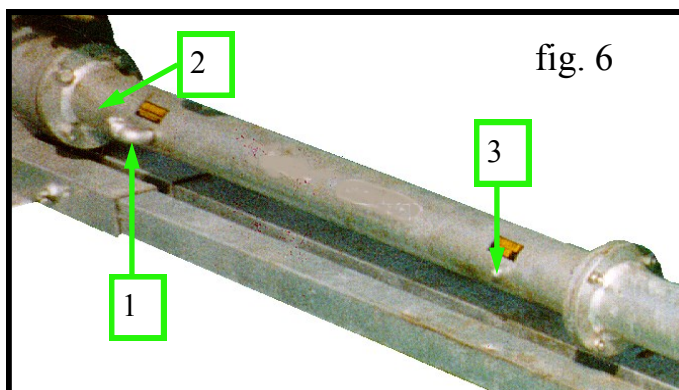
**N.B. During filling and inspection operations, the drive line pipe has to be vertical.**

### INDICATIVE OIL QUANTITY LEVELS FOR DRIVE LINE PIPE

Pump length	100	150	200	250	300	350	400
Oil quantity (kg)	0.5	0.5	0.5	3.2	4.7	5.6	6.6

Pump length	450	500	550	600	650	SPECIAL
Oil quantity (kg)	10.2	11	12.2	13.5	16.5	0.5

Speed-reduction gear	120	150	200
Oil quantity (kg)	1	3	3



- 1) Oil inlet
- 2) Oil vent
- 3) Oil level

## 5. POSITIONING AND TRANSPORT

page 5

**N.B.:** As far as all machines with Cardan are concerned, connect the Cardan shaft between the tractor power take-off and machine unit. For good functioning, the Cardan shaft has to operate parallelly to ground level. Check also that the chain, standard delivered with Cardan-shaft protection, is fastened to the ring.

**N.B.:** As far as the machines powered by electric motor are concerned, DODA is not responsible for any electric connection (please carefully follow directions on plate on motor as well as on sticker indicating the rotation sense).

**N.B.:** In case of long distance transport of the machine, load it on a suitable vehicle by following the instructions indicated at paragraph “LOADING AND UNLOADING OF THE MACHINE”. Never use a tractor for the machine road transport

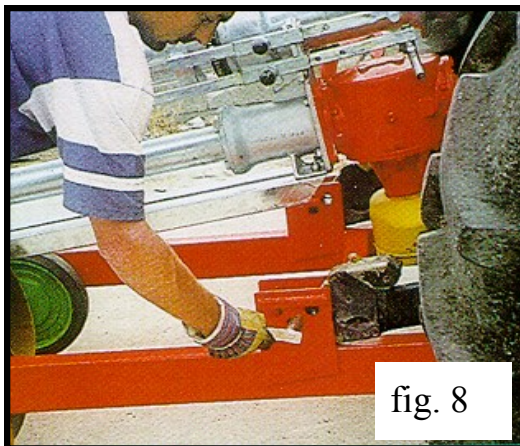


fig. 8

Fasten the trolley to the tractor lifting device by means of the special pins fig. 8. Back up until the tank edge is reached. Remove wheels fig. 9, lower the tractor lifting device by resting the truck on the tank wall fig. 10. Draw out the machine blocking pin (Detail A fig. 10).

Hold the structure of the speed reduction-gear and slowly move it inside the tank fig. 11.

Complete immersion is obtained by means of the manual winch, or the hydraulic winch (available on request) located on the truck fig. 12.



fig. 9

If the tank bottom is reached, lift the machine some centimetres by means of the winch.

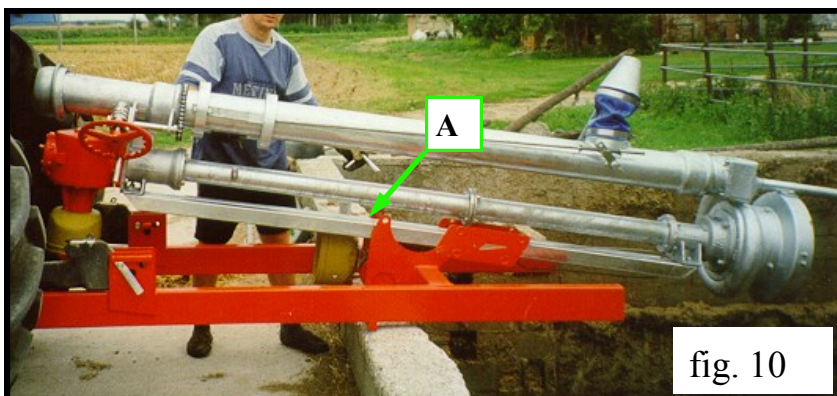


fig. 10

The version with electric motor and wall connection is positioned by simply resting the brackets on the tank wall (fig. 13).



fig. 11



fig. 12

Wall brackets are adjustable according to tank side thickness. These pumps are normally stationary, but on request a manual or electric winch can be installed in order to lift and lower the pump. No fastening device is foreseen by Doda for the positioning of the **ME60, ME80 and SUPER IDRA** series pumps.

Before setting them in motion, be sure that the solutions chosen cannot cause damages to persons or things and that they are suitable for functioning.



fig. 13

Model **Special 120** (powered by an electric motor) is provided with a three-wheeled truck suitable for autonomous movements. This model is specially indicated for narrow, ground-level tanks since the pump, once placed on the on top of the opening, can be vertically lowered.

## 6. WORKING

**WARNING:** read section “GENERAL INSTRUCTIONS” before setting the machine in motion.

After having positioned the machine and checked its stability during normal functioning you can start operating it.

As for all versions provided with an electric motor, after having checked the correct rotation direction, connect them to supply

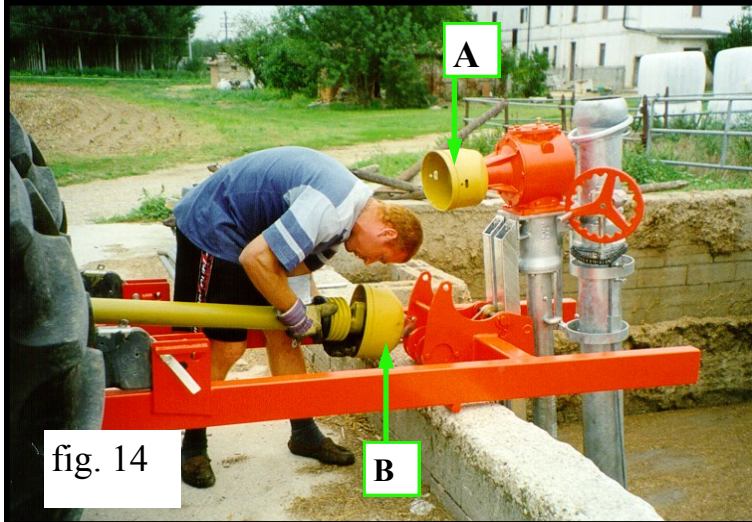
### Starting phases:

- start tractor;
- operate the lever engaging the tractor's power take-off;
- bring tractor to desired speed rate.

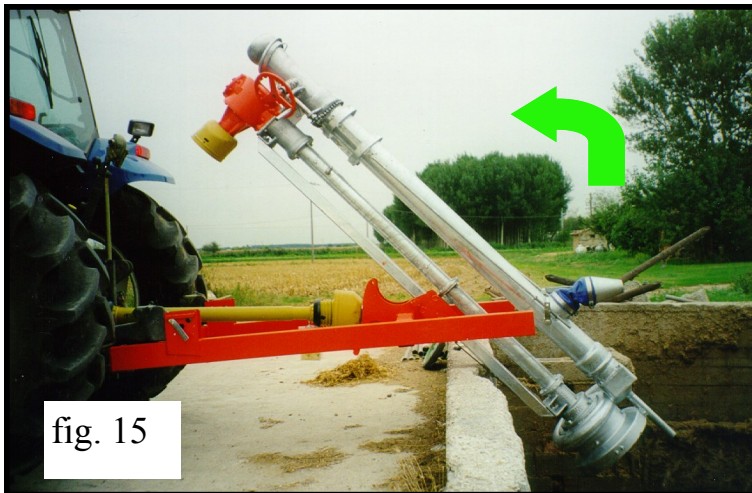
## Stop phases:

page 7

- disconnect the tractor's power take-off;
- disconnect the cardan shaft on the pumping-unit's side (par. A fig. 14) and insert it in place of the winch lever (detail B fig. 14). (NOT FOR VERSION WITH HYDRAULIC WINCH)



- Start tractor's power take-off, in order to raise the pump about half its length
- Disconnect the tractor's power take-off
- Move tractor forward so that the pump lies on the carriage on one side and on the wall's edge on the other fig. 15



- Conclude pump retrieval by starting tractor's power take-off again. Fasten the pump by means of the special locking pin A fig. 1
- Stop tractor's engine



## MIXING OPTIONS FOR SUPER AND ME PUMPS

The outflow and the direction of the slurry drained away can be managed by special levers fig. 16

- the first one opens and closes the butterfly valve which regulate the slurry direction towards the cone or the outlet pipe; remember to reduce tractor's speed ratio before starting this operation.
- the second directs the slurry flow vertically, in case the slurry comes out of the cone

Cone rotation is carried out by means of the winch fig. 17 set on the outlet pipe.

**WARNING:** if the manure is very liquid, some substance could come out of the outlet pipe during pumping operation, even if the valve is completely closed.



## 7. WORK AND SAFETY RULES

- 1) Both during working phases and inspection ones, wear always proper clothing (overalls, gloves, helmet, accident prevention shoes, fastened clothes, etc...).
- 2) The machine has always to be used in a well-lit place.
- 3) Since gases released by liquid manure are poisonous, check that:
  - the work area is suitably ventilated;
  - the machine is not used near to flames.
- 4) Never inspect the liquid manure tank alone. If you loose your balance or if you feel faint due to fumes, ask for help immediately.
- 5) If you do not need to work in a tank, cover it.
- 6) The machine has to be used only by accountable adults and in a place not be accessible to children.
- 7) Do not carry out operations or adjustments when the machine is in motion or when it is connected to supply.
- 8) The machine has to be employed only if all necessary protections are correctly positioned, by following the instructions indicated in the previous paragraphs to avoid possible contacts with moving parts. Do not damage or remove such protections.
- 9) The machine can be set in motion only if it has already been filled up with oil (drive pipes and gearbox).
- 10) Before starting work phases, check that the whole assembly is stable (machine and tractor).

- 11) During maintenance verify that the machine is perfectly standing and disconnected from supply.
- 12) The trolley has not to be used for road transport (if foreseen).
- 13) During operation, maintenance or adjustment, the rubber parts of the machine (gaskets, etc.) have not to come into contact with oil, grease or oil derivatives.
- 14) Make sure that motor rotation is clockwise as indicated by the arrow on the motor (if foreseen).
- 15) As regards machines provided with electrical supply, the connection has to be carried out in a place protected from atmospheric precipitation.
- 16) If the delivery line is connected to pipes or hoses, check that the suitable fastening joints are in perfect conditions; do not stop near to them, due to danger of bursting and tearing.
- 17) Work and keep the machine in a dry area and protected from rainfall, if it is not employed for a long time.

## 8. MAINTENANCE

**Before carrying out any maintenance operation stop the machine and disconnect it from supply.**

- 1) Check the oil level regularly in machine parts requiring lubrication, (driving pipes and geared units) and replace oil completely after 50 working hours and every 1500 working hours or every years (use the oil SAE90).
- 2) Each 50 operating hours lubricate all parts which need it. (lubricators, piston articulated joints, gear wheels, etc.)
- 3) At the end of its utilisation, wash the machine to prevent liquid manure from solidifying: this would cause damages.
- 4) Check periodically impeller and blade wear conditions . Replace them if necessary.

**As regards all spare parts, apply directly to DODA authorized dealers.**

### **ATTENTION!**

**When the machine is new we recommend that the gearbox oil should be changed after the first 50 working hours.**

## 9. STICKERS

The machine is provided with the following stickers:

### IMPORTANTE

PRIMA DELL'USO RIEMPIRE D'OLIO

FINO A LIVELLO (SAE 90)

IMPORTANT: FILL UP THE MACHINE WITH SAE 90 OIL TILL THE INDICATED LEVEL BEFORE USING IT.

LIVELLO  
OLIO

FILL UP THE MACHINE WITH OIL TILL THE LEVEL INDICATED AND CHECK IT PERIODICALLY.

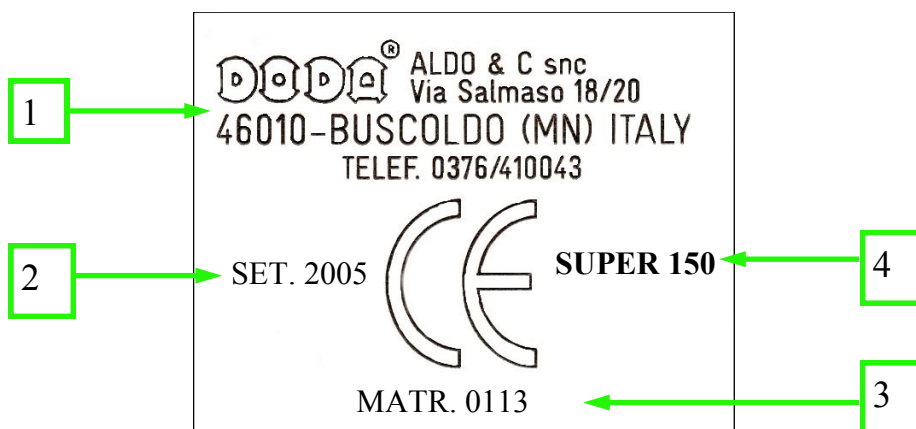
### ATTENZIONE

*Prima di posizionare la macchina verificare che il motore sia collegato nel senso di rotazione indicato dalla freccia.*

### WARNING

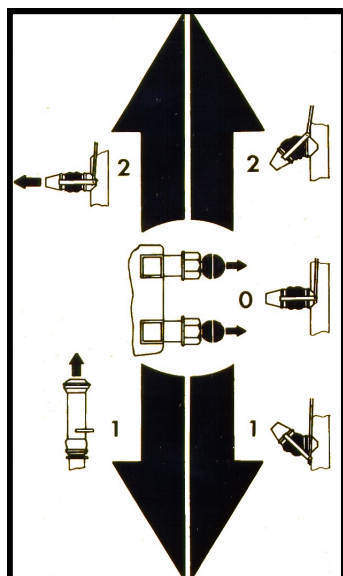
*Before placing the pump control the turning direction of the motor it must run as pointed out by the arrow. **0000***

THIS STICKER REMINDS YOU TO CHECK THE ROTATION DIRECTION OF THE MACHINE ELECTRIC MOTOR BEFORE SETTING THE MACHINE IN MOTION.



Sticker consistent with EC rules:

- 1) NAME OF FIRM
- 2) MONTH AND YEAR OF PRODUCTION
- 3) SERIAL NUMBER
- 4) TYPE OF MACHINE



OPERATIONS TO CARRIED OUT THROUGH THE LEVERS OF DELIVERY PIPE:

- LEVER FOR THE MIXING CONE DIRECTION CONTROL;
- LEVER FOR THE FLOW CONVEYING BUTTERFLY VALVE.

# 10. PERFORMANCE AND TECHNICAL DATA

page 11

The whole structure is hot-galvanised and assure pump service life: the pump needs maintenance very rarely, thanks to its oil-bath drive. The technical features assuring a DODA high reliability are several:

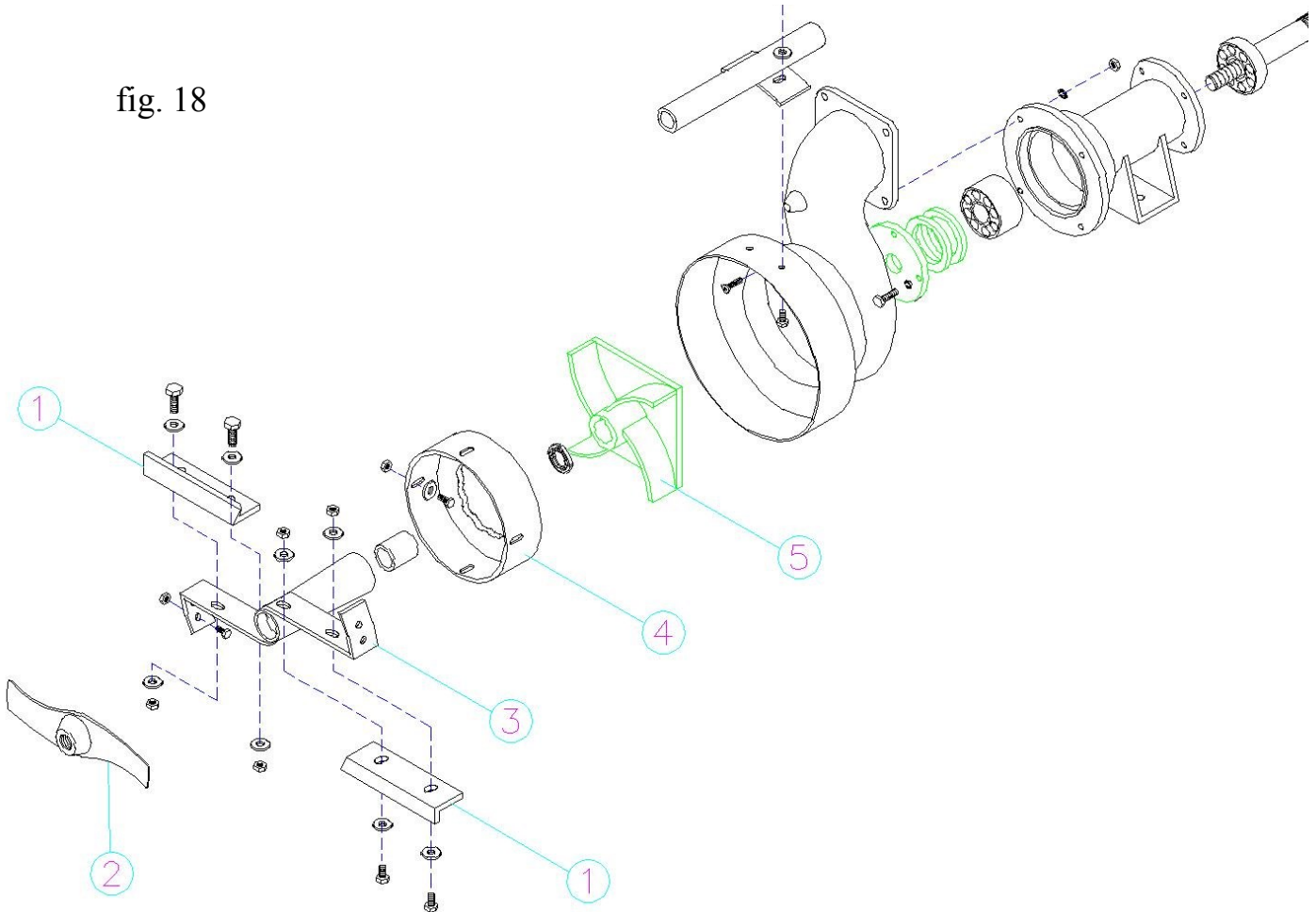
- Pump bodies made of nodular cast iron and stainless steel or hot-galvanised metal structural work.
- Pump body shafts made of stainless steel AISI 304
- Impellers made of steel, stainless steel, nodular cast iron, hardened steel.
- Pressed blades made of hardened manganese-vanadium alloy steel.
- Drive-column made of a hot-galvanised high-resistance mechanic pipe.
- Drive shaft made of a drawn round bar Ø 30 with dovetailing in C40
- Oversized multiplier.
- Mechanic seal in Widia with Widia.

Mod. Pompa Pump mod. Mod. pompe Pumpenmodell	Tubo Uscita (ømm) Outlet pipe (ømm) Tuyau sortie (ømm) Auslab (ømm)	Giri Girante Impeller revolution Tour de la turbine U/des laufrades	Portata (l/min) Capacity Débit Förderleist ung	H (m) H (m) H (m) H (m)	HP assorbiti HP absorbet HP absorbés Leistung PS	CV motori e. CV electric motor CV moteurs el. Elektrische mo. PS
Super ME 60/1	60	1450	500	3	0.8-0.9	1
Super ME 80/3	80	1450	1300	5	2-2.5	3
Super ME 100/7.5	100	1450	2000	7.5	6.5-7	7.5
Super ME 120/12.5 Ultra ME 120/12.5	120	1450	2800	15	10-12	12.5
Super ME 120/15 Ultra ME 120/15	120	1450	3000	18	12-14	15
Super ME 120/20 Ultra ME 120/20	120	1450	3400	22	17-19	20
Super ME 120/25 Ultra ME 120/25	120	1450	3800	24	22-24	25
Super 120	120	1600	4000	25	40-60	-
Super 150 Ultra 150	150	1600	6500	30	60-100	-
Super 200	200	1600	11000	50	80-130	-

## 11. INSTRUCTIONS FOR DISMANTLING AND RE-ASSEMBLING THE PUMP

To dismantle the pump body follow the numerical sequence indicated in exploded view here below fig. 18, starting from reverse blades marked with the number 1.

fig. 18

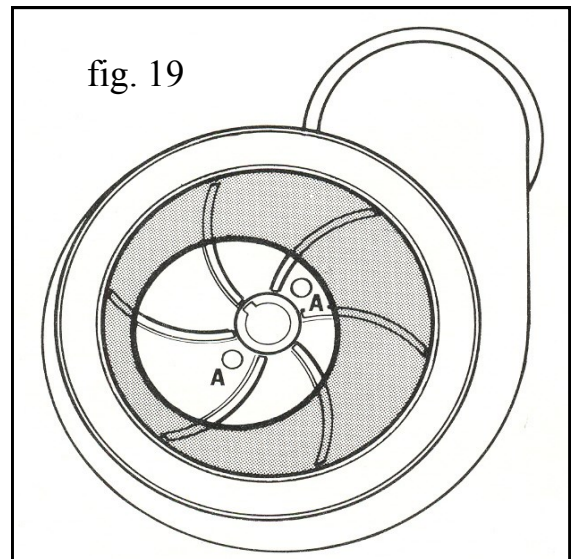


To remove the impeller, screw two bolts in the threaded holes "A" (see fig.19) until the complete ejection of the impeller itself.

The impeller ring (pressure plate) has to be re-assembled with the wider part near the delivery pipe (see fig.19)

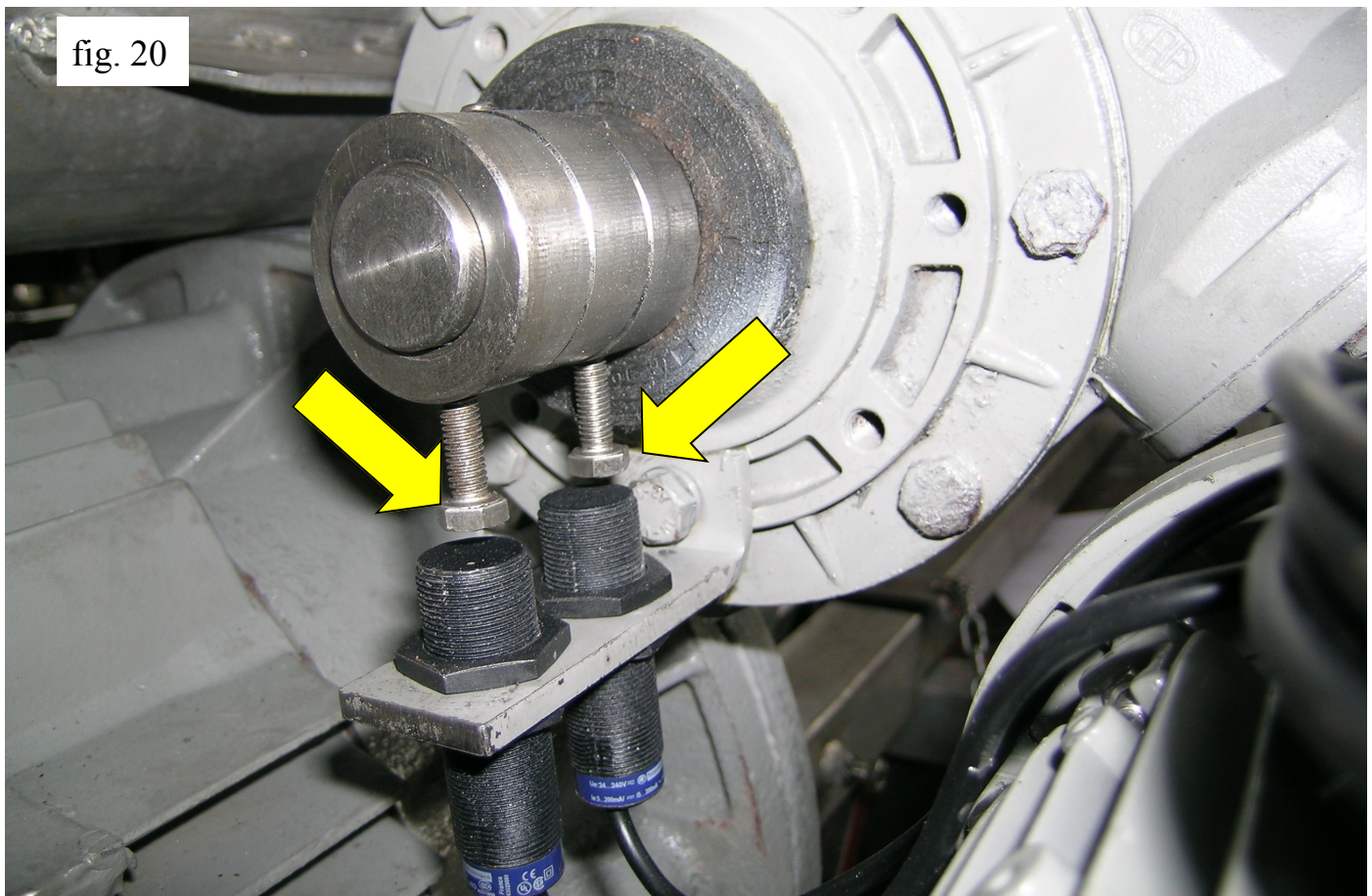
When assembled, impeller ring should skim the impeller vanes but without coming into contact.

fig. 19



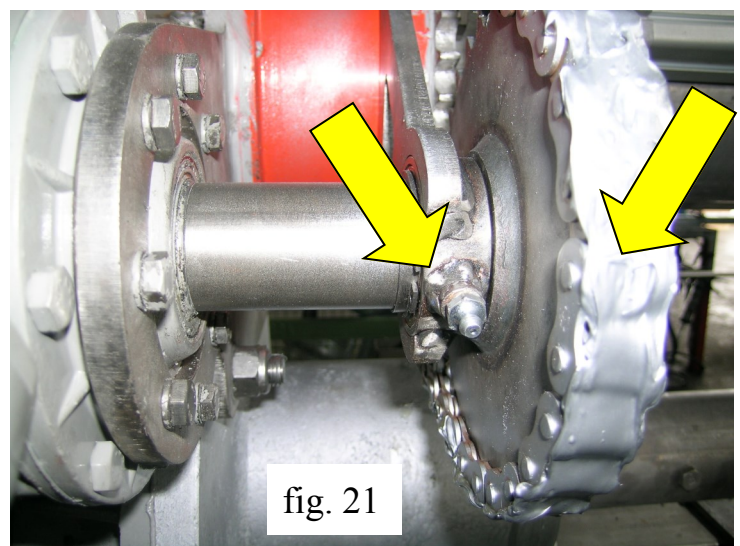
This device is an optional which can be installed on some pumps in order to have the automatic rotation of the mixing nozzle. It can be adjusted by loosening the two screws indicated in fig. 20 and by turning clockwise or anti-clockwise the two ring nuts till the required rotation angle is reached. After having carried out the change tighten the two screws.

**Attention!!!** During the adjustment the mixing nozzle has to be at sight: if the rotation angle is excessive the cone touches the pump driving line and it is damaged. Keep 2-3 mm distance between the screw head and the sensor: use the two sensor nuts as regulator.



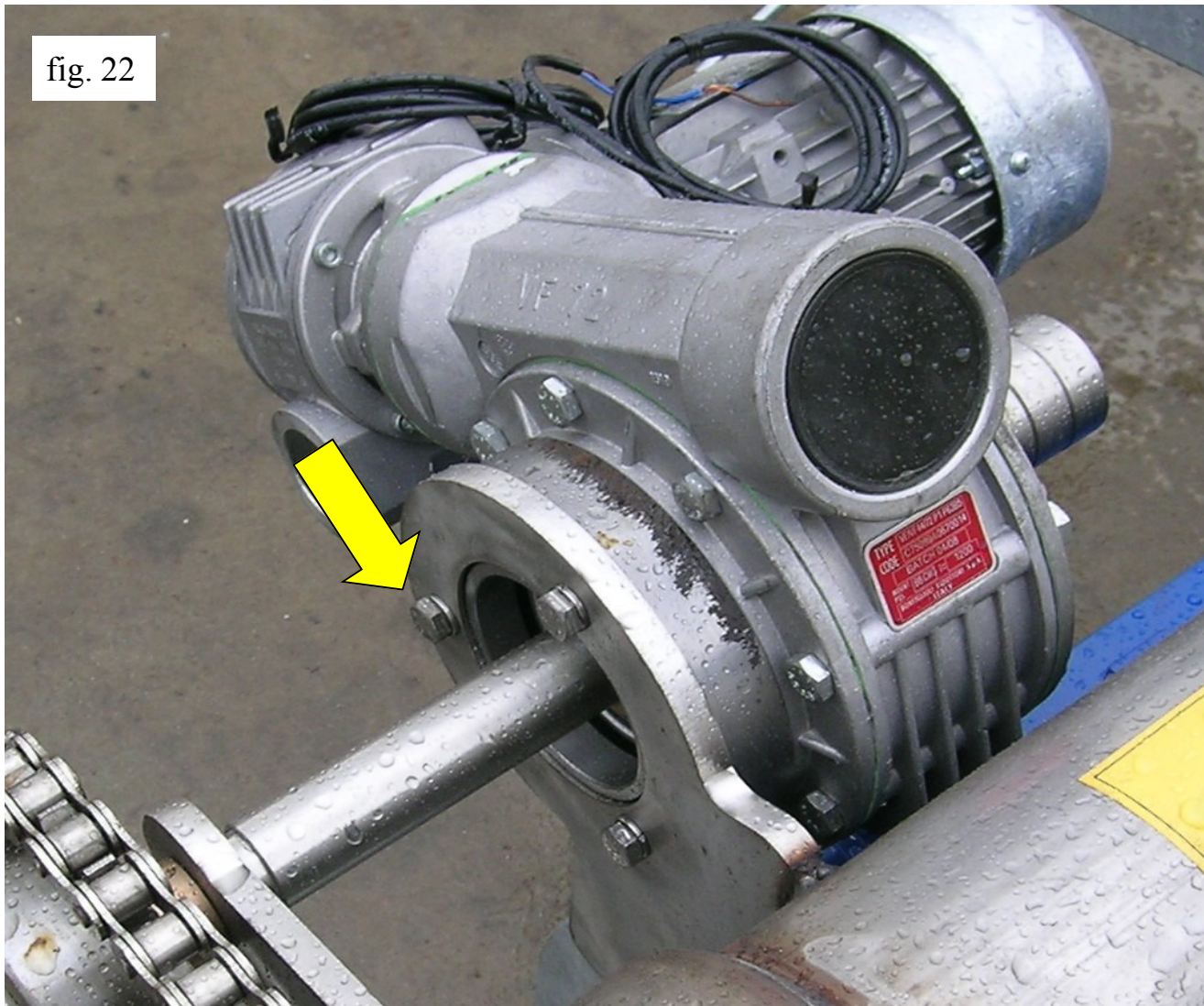
Lubricate periodically the parts indicated in fig. 21 preferably with washing out resistant grease.

If the chain is excessively rigid or it has lengthened too much, replace it by removing the connecting ring.



- Check if the switchboard is off;
- remove the chain by opening the connecting ring ;
- unscrew the pinion fastening screw (see fig. 23);
- remove the pinion from the shaft;

fig. 22



- remove the key;
- remove the electric motor or disconnect the electric wires on the motor side;
- remove the turning device sensors by unscrewing the plastic nuts (see fig.20);
- remove the speed-reduction gear fastening screws (see fig. 22).
- For the mounting follow the opposite procedure.

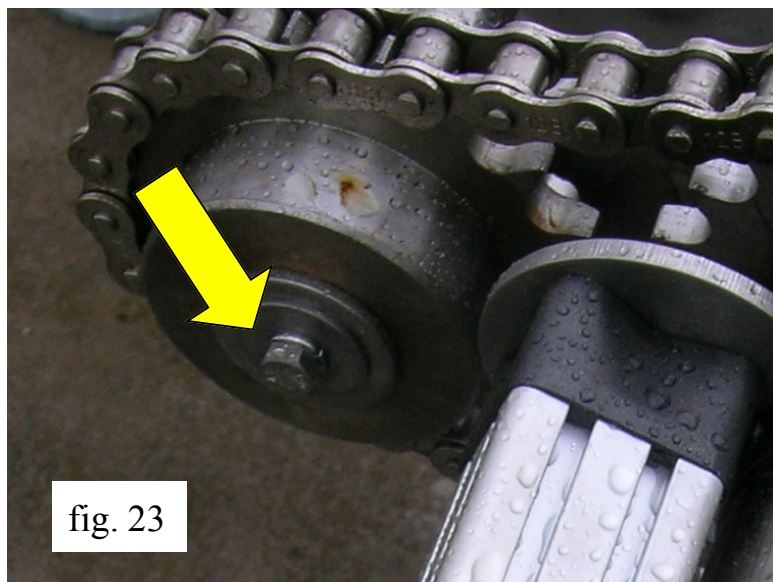


fig. 23

The pneumatic cylinder replaces the lever which moves the delivery pipe valve. It is recommended that the outer part of the chromium plated stem should be greased periodically when it is in a position of maximum extension ( see fig 24).

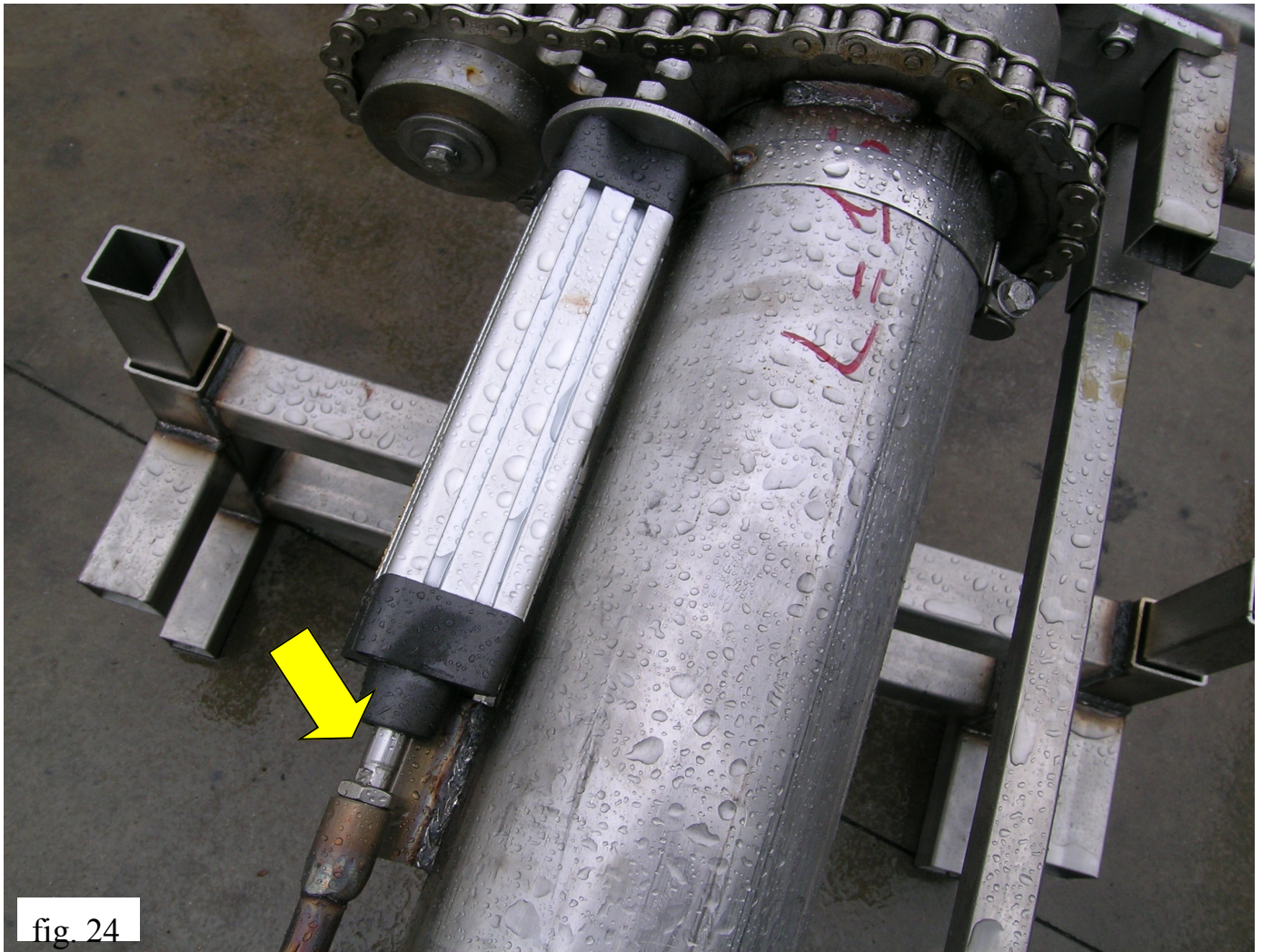


fig. 24

In case of replacement act as follows:

- loosen the lock nut on the piston stem (see fig. 25);
- unscrew completely the piston fastening clamp which embraces the delivery pipe;
- remove the air pipes from the piston but only after having closed the delivery pipe on the air system;
- unscrew the bar stem by turning the piston anti-clockwise.
- for the mounting follow the opposite procedure. Be sure that the new piston can move completely the valve: if necessary screw or unscrew the stem on the bar before tightening the lock nut.

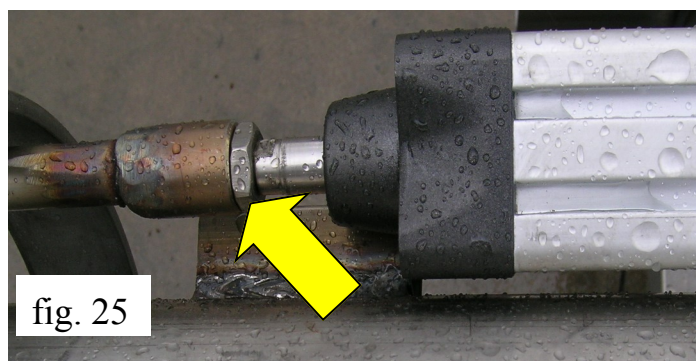


fig. 25

## ELECTRO ADDA 1.3

**MOTORI ASINCRONI TRIFASI - Caratteristiche tecniche - 4 poli - 1500 giri/min - 50 Hz**  
CON ROTORE A GABBIA - COSTRUZIONE CHIUSA - VENTILAZIONE ESTERNA

**ASYNCHRONOUS THREE-PHASE MOTORS - Technical Features - 4 poles - 1500 rpm - 50 Hz**  
WITH SQUIRREL CAGE ROTOR - ENCLOSED CONSTRUCTION - EXTERNAL VENTILATION

**DREHSTROM-ASYNCHRONMOTOREN - Technische Daten - 4 polig - 1500 U/min - 50 Hz**  
MIT KÄFIGLÄUFER - GESCHLOSSENE AUSFÜHRUNG - OBERFLÄCHENKÜHLUNG

Tipo motore	Potenza kW	Velocità giri/min	J rotore Kgm <sup>2</sup>	Rend. %	Fattore di potenza cos. FI	Corrente In a 400V. A	Coppia nom. Cn Nm.	Coppia di spunto Ca / Cn	Corrente di spunto Ia / In	Coppia max. Cmax/Cn	B3 Peso Kg
63-a	0.13	1340	0.00024	60	0.6	0.52	0.93	2.3	3	2.3	3.8
63-b	0.18	1340	0.00029	61	0.6	0.71	1.28	2.3	3	2.3	4.1
71-a	0.25	1350	0.00035	68	0.65	0.82	1.77	2	3.5	2	5.7
71-b	0.37	1350	0.00052	69	0.67	1.2	2.62	2	3.5	2	7
80-a	0.55	1360	0.00122	72	0.7	1.6	3.86	2.3	4.3	2.3	8.6
80-b	0.75	1360	0.0017	73	0.73	2.0	5.27	2.3	4.3	2.3	10
90S	1.1	1380	0.0022	76.2	0.78	2.7	7.61	2.3	4.5	2.5	11.9
90L	1.5	1380	0.0028	78.5	0.77	3.6	10.4	2.3	4.5	2.5	14.2
100L-a	2.2	1410	0.0050	81	0.79	5.0	14.9	2	4.5	2.2	18.7
100L-b	3	1410	0.006	82.6	0.80	6.5	20.3	2	4.5	2.2	21.2
112MT	4	1420	0.009	84.2	0.81	8.5	26.9	2.4	5	2.5	25.7
132S	5.5	1430	0.021	85.7	0.80	11.5	36.7	2.1	6	2.5	43
132M-a	7.5	1430	0.028	87	0.81	15.4	50.1	2.1	6	2.5	50.3
132M-b	9	1430	0.034	87	0.81	18.4	60.1	2.1	6	2.5	55.8
160MT	11	1465	0.039	88.4	0.83	21.8	71.7	2.6	5.9	2.6	69.5
160L	15	1465	0.080	89.4	0.82	30	97.8	2.6	6	2.6	89
180MT	18.5	1470	0.098	90	0.83	36	120.2	2.5	6.5	2.8	110
180LT	22	1470	0.12	90.5	0.83	43	142.9	2.5	6.5	2.8	119
200LT	30	1470	0.16	91.4	0.85	56	194.9	2.4	6.5	2.8	155
225ST	37	1480	0.31	92	0.84	69	239	2.6	7.1	2.9	202
225MT	45	1480	0.39	92.5	0.84	84	290	2.6	7.1	2.9	235
250MT	55	1480	0.51	93	0.85	100	355	2.5	7.3	2.6	286
280ST	75	1485	1.15	93.6	0.86	134	482	2.5	7.3	2.7	387
280MT	90	1485	1.31	93.9	0.86	160	579	2.6	6.7	2.7	415
315ST	110	1485	1.55	94	0.88	193	708	2.6	6.7	2.7	496
315M-a	132	1485	2.6	94	0.88	231	849	1.5	5.6	2.7	630
315M-b	160	1485	3.5	94	0.88	280	1029	1.7	6.4	3	740
315M-c	200	1485	4.16	94.2	0.89	345	1286	1.7	6.6	3	882

Tipo  
Potenza  
Velocità  
Momento d'inerzia  
Rendimento  
Fattore di potenza  
Corrente  
Coppia nominale  
Coppia di spunto  
Corrente di spunto  
Coppia massima  
Peso  
Forma

Type  
Rated power  
Speed  
Inertia moment  
Efficiency  
Power factor  
Rated current  
Rated torque  
Starting torque  
Starting current  
Maximum torque  
Weight  
Mounting

Type  
Leistung  
Drehzahl  
Trägheitsmoment  
Wirkungsgrad  
Leistungsfaktor  
Strom  
Nennmoment  
Anlaufdrehmoment  
Anlassstrom  
Max. Drehmoment  
Gewicht  
Bauform



VOLUNTARY AGREEMENT

**CEMEP** EUROPEAN COMMISSION DG XVII

Per altezze d'asse superiori al 315 richiedere lo specifico catalogo.

For size bigger as 315, please ask for the specific catalogue.

Für Baugröße höher als 315 bitte fragen Sie nach den besonderen Katalog.

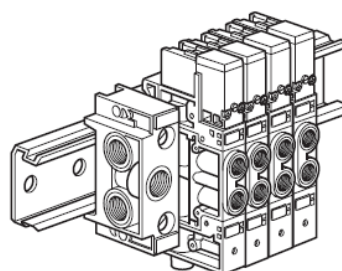
Potenze comprese tra 1.1+90 kW  
(indicate in grassetto)

Powers included between 1.1+90 kW  
(mentioned in bold)

Leistungen zwischen 1.1+90 kW enthalten  
(in halbfetter Schrift angegeben)



- High flow, compact size
- Push-in or threaded connection
- DIN rail or block mounting
- Light weight construction
- Inline stand alone or stackable version
- Available in 2 x 3/2 - 5/3 (PVL-B/C)



### Operating information

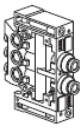
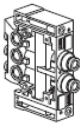
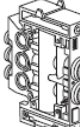

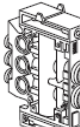
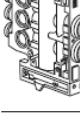
Working pressure;			<b>PVL-A</b>	<b>PVL-B</b>	<b>PVL-C</b>
Pneumatically operated:	2-10 bar	Flow:	270	900	1800 l/s
Electrically operated, bistable:	2-10 bar	Qmax			
Electrically operated, monostable:	3-10 bar	(acc. to ISO 6358)			
Working temperature	-15 °C to +60 °C	Flow measured with valve on manifold			

## Compact

## PVL-B/C

## Main data for PVL-B/C directional control valves

Stand alone version

Symbol	Conne-Actuator tion Push-in/ Threaded	Return	Signal pressure min, bar at 6 bar actua./return	Changeover time, ms at 6 bar actua./return	Weight Kg	Order code	D
<b>Electrically/pneumatically actuated 5/2 valves</b>							
<b>Size G1/8</b>							
For use with 1,2 W / 1,6 VA miniature solenoid actuator or air-pilot connector							
	Ø6 mm Electric	Electric	0,7/0,7	12/12	0,120	PVL-B112606	1
	G1/8 or Air	or Air	0,7/0,7	12/12	0,120	PVL-B112618	1
	Ø6 mm Electric	Spring	2,8/1,2	15/30	0,125	PVL-B111606	1
	G1/8 or Air	or Air	2,8/1,2	15/30	0,125	PVL-B111618	1
	Ø6 mm Electric	Air spring	3,7/2,1	20/35	0,125	PVL-B113606	3
	G1/8 or Air	or Air	3,7/2,1	20/35	0,125	PVL-B113618	3
<b>Electrically actuated 5/3 valves</b>							
	Ø6 mm Electric	Electric			0,130	PVL-B117606	3
	G1/8 Closed centre	Self centering			0,130	PVL-B117618	3
	Ø6 mm Electric	Electric			0,130	PVL-B118606	3
	G1/8 Vented centre	Self centering			0,130	PVL-B118618	3
	Ø6 mm Electric	Internal air	2,3/4,5	7/15	0,130	PVL-B115606	3
	G1/8 or Air	or Air	2,3/4,5	7/15	0,130	PVL-B115618	3
<b>Electrically/pneumatically actuated 2 x 3/2 valves</b>							
	Ø8 mm Electric	Electric	0,9/0,9	17/17	0,230	PVL-C112608	3
	G1/4 or	or	0,9/0,9	17/17	0,230	PVL-C112619	3
	G3/8 Air	Air	0,9/0,9	17/17	0,230	PVL-C112613	3
	Ø8 mm Electric	Spring	2,8/1,0	25/60	0,240	PVL-C111608	1
	G1/4 or	or	2,8/1,0	25/60	0,240	PVL-C111619	3
	G3/8 Air	Air	2,8/1,0	25/60	0,240	PVL-C111613	3
	Ø8 mm Electric	Air spring	3,5/2,3	30/50	0,240	PVL-C113608	3
	G1/4 or	or	3,5/2,3	30/50	0,240	PVL-C113619	3
	G3/8 Air	Air	3,5/2,3	30/50	0,240	PVL-C113613	3
<b>Electrically actuated 5/3 valves</b>							
	Ø8 mm Electric	Electric			0,250	PVL-C117608	3
	G1/4 Closed centre	Self centering			0,250	PVL-C117619	3
	Ø8 mm Electric	Electric			0,250	PVL-C118608	3
	G1/4 Vented centre	Self centering			0,250	PVL-C118619	3
	Ø8 mm Electric	Internal air	0,9/0,9	15/15	0,240	PVL-C112408	3
	G1/4 or Air	or Air	0,9/0,9	15/15	0,240	PVL-C112419	3
<b>Size G1/4</b>							
For use with 6 W / 8,5 VA solenoid actuator or air-pilot connector							
	Ø8 mm Electric	Spring	2,8/1,0	20/50	0,250	PVL-C111408	3
	G1/4 or Air	or Air	2,8/1,0	20/50	0,250	PVL-C111419	3
	Ø8 mm Electric	Air spring	3,5/2,3	25/45	0,250	PVL-C113408	3
	G1/4 or Air	or Air	3,5/2,3	25/45	0,250	PVL-C113419	3

The above valve operation can be either:

- Pneumatic, with the addition of one or two pilot connectors complete with Ø4 mm Push-in connections
- Electrical, with the addition of one or two 1 W or 5W solenoid actuators

## Mounting

The valves have integral mounting holes suitable for M4 screws and can be directly mounted onto any suitable surface

The pipework connections will be either use of threaded fittings or direct Push-In depending on the body selected

## Compact

## PVL-B/C

## Wiring and connecting accessories for PVL-A

Connector 2 x 0,128 mm <sup>2</sup>	Order code	D
Connector only (sold in pack of 10 pcs)	PES-D10	3
Connector with 2 m cable	PES-D100	3
Connector with 5 m cable	PES-D101	3
Connector with 10 m cable	PES-D102	3
Terminal to be crimped (sold in pack of 10 pcs)	SY3CM0142	3

Solenoids 15 mm 1,2W / 1,6VA  
(9,4 mm pin spacing),

Without manual override



Without cable connector

Voltage	Order code	D
12 VDC	PS1-E2492J	3
24 VDC	PS1-E2492B	3
48 VDC	PS1-E2492E	3
24 V 50/60Hz	PS1-E2491B	3
48 V 50/60Hz	PS1-E2491E	3
115 V 50Hz, 120 V 60Hz	PS1-E2491F	3
230 V 50Hz, 240 V 60Hz	PS1-E2491M	3



With unwired 15 mm cable connector

Voltage	Order code	D
24 VDC	PVA-H2492B	1
48 VDC	PVA-H2492E	3
24 V 50/60Hz	PVA-H2491B	1
48 V 50/60Hz	PVA-H2491E	3
115 V 50Hz, 120 V 60Hz	PVA-H2491F	1
230 V 50Hz, 240 V 60Hz	PVA-H2491M	3

Electrical connector 15x15mm (9,4 mm pin spacing)	Order code	D
Connector to be wired (universal)	PES-C10	3
Connector to be wired with LED+Protection C2020B 24 V DC/AC	PES- C2020B	3



With prewired 15 mm cable connector, cable length L=2 m

Voltage	Order code	D
24 VDC	PVA-H2492B0	3
48 VDC	PVA-H2492E0	3
24 V 50/60Hz	PVA-H2491B0	3
48 V 50/60Hz	PVA-H2491E0	3
115 V 50Hz, 120 V 60Hz	PVA-H2491F0	3
230 V 50Hz, 240 V 60Hz	PVA-H2491M0	3



With prewired 15 mm cable connector, cable length L=5 m

Voltage	Order code	D
24 VDC	PVA-H2492B1	3
48 VDC	PVA-H2492E1	3
24 V 50/60Hz	PVA-H2491B1	3
48 V 50/60Hz	PVA-H2491E1	3
115 V 50Hz, 120 V 60Hz	PVA-H2491F1	3
230 V 50Hz, 240 V 60Hz	PVA-H2491M1	3

Electrical connector 15x15mm (9,4 mm pin spacing)	Order code	D
Connector with 2 m cable (earth terminal opposite cable)	PES-C12	3
Connector with 2 m cable with LED+Protection C2220B (earth terminal opposite cable) 24 V DC/AC	PES- C2220B	3

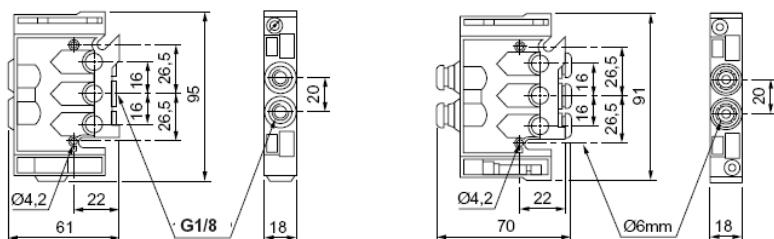
# Compact

## PVL-B

### Stand-alone power valves 1/8" without piloting accessories

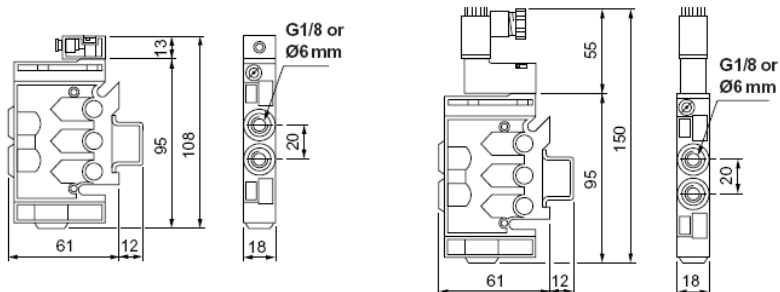
Monostable PVL-B1116\*\*, PVL-B1136\*\*

Bistable PVL-B1126\*\*

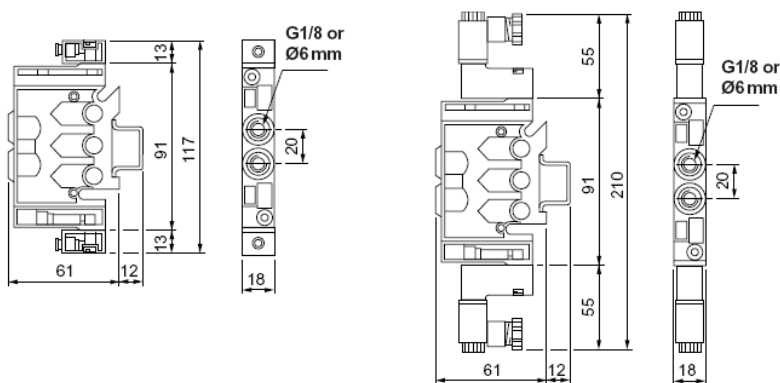


### Stacking power valves 1/8" with pneumatic or electrical piloting

Monostable PVL-B1216\*\*, PVL-B1236\*\*



Bistable PVL-B1226\*\*





# Telemecanique



## XS4P18MA230

inductive sensor XS4 M18 - L60mm - PPS - Sn8mm -  
24..240VAC/DC - cable 2m

### Characteristics

#### Main

Range of product	OsiSense XS
Body type	Fixed
Type of output signal	Discrete
Wiring technique	2-wire
[Sd] sensing range	> 4...8 mm
[Sn] nominal sensing distance	8 mm
Series name	General purpose
Discrete output function	1 NO
Electrical connection	Cable
Sensor type	Inductive proximity sensor
Cable length	2 m
[Us] rated supply voltage	24...240 V AC/DC , 50/60 Hz 24...240 V
Switching capacity in mA	5...200 mA DC 5...300 mA AC
Product specific application	-
Sensor name	XS4
IP degree of protection	IP68 double insulation conforming to IEC 60529
Sensor design	Cylindrical M18
Size	60 mm

## Complementary

Detector flush mounting acceptance	Non flush mountable
Material	Plastic
Enclosure material	PPS
Operating zone	0...6.4 mm
Differential travel	1...15% of Sr
Output circuit type	AC/DC
Cable composition	2 x 0.34 mm <sup>2</sup>
Wire insulation material	PvR
Status LED	1 LED (yellow) for output state
Supply voltage limits	20...264 V AC/DC
Residual current	≤ 0.6 mA (open state)
Switching frequency	≤ 2000 Hz (DC) ≤ 25 Hz (AC)
Voltage drop	≤ 5.5 V (closed state)
Delay first up	≤ 40 ms
Delay response	≤ 0.2 ms
Delay recovery	≤ 0.2 ms
Marking	CE
Threaded length	51.5 mm
Length	60 mm
Product weight	0.1 kg
ISO thread	M18 x 1
Detection face	Frontal

**Environment**

Product certifications	CCC CSA UL
Ambient air temperature for operation	-25...70 °C
Ambient air temperature for storage	-40...85 °C
Vibration resistance	25 gn , amplitude: +/- 2 mm (f = 10...55 Hz) conforming to IEC 60068-2-6
Shock resistance	50 gn (duration = 11 ms) conforming to IEC 60068-2-27
RoHS EUR conformity date	0810
RoHS EUR status	Compliant

## "Clean profile" cylinders to ISO 15552 standard

# series X

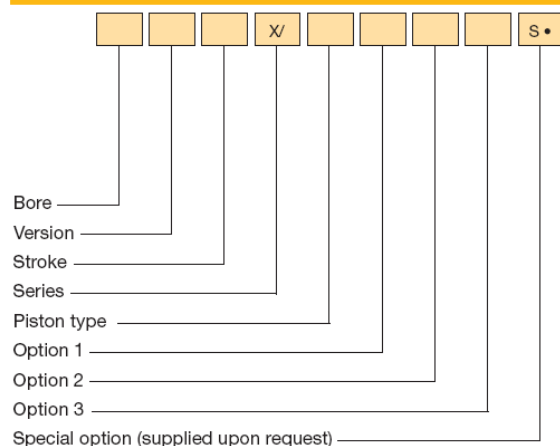
### DESCRIPTION

Pneumatic cylinders series "X" comply with ISO 15552 standard, being in this way completely interchangeable with the well-known cylinders to ISO 6431 standard, defining the dimensions of both the "nude" cylinder than assembled with fixings. They're available in the bores from Ø 32 to Ø 100 and the cylinder barrel, made in extruded aluminium alloy, has some pits ("T"-shaped slots) on three sides where it's possible to mount directly the new magnetic sensors series FM100. This peculiarity allows to leave the dimensions of the cylinders unchanged, keeping the mentioned sensors, completely embedded and granting them a better protection. The dynamic seals are made in high performances polyurethane with standard working temperature between -35°C and +80°C. Among all the available versions, a special mention deserves the non-rotating piston rod one with a particular section, made of AISI 304 stainless steel supplied as standard. The compact and advanced design makes the series "X" a product aesthetically appealing yet useful. In fact, thanks to proper cover strips that give the cylinders a really "clean profile", the cylinders are not subject to receive dirt and so they result suitable also for "difficult" environments like the food one. A further feature is the possibility to assemble some series of valves directly on the cylinder barrel thanks to the brackets type "X/P/M.." (see page 1.24).

### MATERIALS

End caps	Painted die-cast aluminium alloy
Cylinder barrel	Extruded profile, 20 µm anodized aluminium alloy
Screws	Steel (self-forming)
Piston rod	C45 chromium-plated steel AISI 303 rolled stainless steel
Rod nut	Steel Stainless steel
Piston rod bearing	Bronze-iron 20%, sintered, self-lubricating
Piston	Techno-polymer (supplied with and without magnet) Aluminium alloy for high temperatures
Seals	Polyurethane Viton®
Cover strips	Polyvinyl chloride

### ORDER KEY



P.S.: Magnetic sensors FM100-FM157-FM158 (see chapter magnetic sensors from page 1.93)  
• See technical data on page 0.12

### ORDER EXAMPLES

Cylinder Ø 50, double acting, 100 mm stroke, non-magnetic piston type, fit for piston rod locking unit 50/100 X/NZ

Cylinder Ø 63, through rod, 150 mm stroke, magnetic piston type, stainless steel piston rod with cover strips 63R150 X/M14

Cylinder Ø 80, double stroke tandem, 50 mm stroke 1 + 100 mm stroke 2, magnetic piston type 80P50+100 X/M



1

### TECHNICAL DATA

Operating pressure	1÷10 bar
Working temperature	0 ÷ +80°C (with dry air -35°C) 0 ÷ +150 °C with seals for high temperature (with dry air -10°C)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod; Double push tandem; Double stroke tandem; Opposed tandem
Bore	Ø 32,40,50,63,80,100
Port size	Ø 32 = G 1/8 Ø 40 - 50 = G 1/4 Ø 63 - 80 = G 3/8 Ø 100 = G 1/2
Standard strokes (mm)	25, 50, 75, 80, 100, 125, 150, 160, 200, 250, 300, 400 320, 350, 500, 550, 600, 650, 700, 800, 900, 1000
Decelerators lenght	Ø 32 40 50 60 80 100 mm 24 29 29 35 35 40
Maximum stroke (mm)	Ø 32 ÷ 100 = 3000
Max. stroke single acting (mm)	Ø 32 ÷ 100 = 50

### VERSION

/ Double acting	T Double push tandem
S Single acting front spring	P Double stroke tandem
Y Single acting rear spring	V Opposed tandem
R Through rod	

### PISTON TYPE

N Non-magnetic	M Magnetic
----------------	------------

### OPTION 1

Z Fit for piston rod locking unit	A Stainless steel non-rotating piston rod
-----------------------------------	---

### OPTION 2

1 Stainless steel piston rod and rod nut*	3 Stainless steel piston rod and rod nut and seals for high temperatures**
2 Seals for high temperatures**	

### OPTION 3

4 Cover strips for magnetic sensors slots***	
--	--

\* Supplied as standard with option "A" (non-rotating piston rod)  
\*\* Supplied only with non-magnetic piston type and standard piston rod  
\*\*\* Supplied as standard for big slot

### SPARE PARTS

SEALS KIT	
Polyurethane	Ø/SG/X
Through rod polyurethane	Ø/SG/R/X
For high temperatures	Ø/SG/X2
Through rod for high temperatures	Ø/SG/R/X2







# **EC DECLARATION OF CONFORMITY AS DEFINED BY DIRECTIVE 2006/42/EC AND FOLLOWING MODIFICATIONS**

WE

DODA ALDO & C. S.n.c.

Via Contrargine Sud, 3/5  
46010 Canicossa (Mantova)

HEREBY DECLARE UNDER OUR OWN RESPONSIBILITY THAT THE  
FOLLOWING PRODUCTS:

CHOPPING EMULSIFYING VERTICAL- AXIS PUMPS SERIES SUPER AND ME

TO WHICH THIS DECLARATION REFERS, CONFORM TO DIRECTIVE 2006/42/CE  
AND FOLLOWING MODIFICATIONS.

CANICOSSA (MANTOVA)

ALDO DODA  
CEO

.....  
(Name, signature, corresponding stamp)



***COSTRUZIONE MACCHINE AGRICOLE***  
***di DODA ALDO & C SNC***

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