

Introduction


Diaphragm Dosing Pumps in the MEMDOS TM series are low-cost, robust, motor driven Dosing Pumps. By virtue of its design the pump has no stuffing boxes and is leak-free.

The Dosing Pumps, with ranges of between 4 . . . 45 lts/hr, are admirable suited for proportioning liquid for drinking water, swimming-pool water and waste water treatment. Most aggressive chemicals may be dosed.

Standard versions are pumps with the dosing head arrangement on the left-hand side.

Type designation TM ... L (symbol )

Duplex pumps with two identical, independently adjustable dosing heads are also available. The motor output for duplex pumps is the same as that of the single pump because the dosing heads operate on a reciprocating basis.

Type designation ZTM (symbol )

Dosing Head

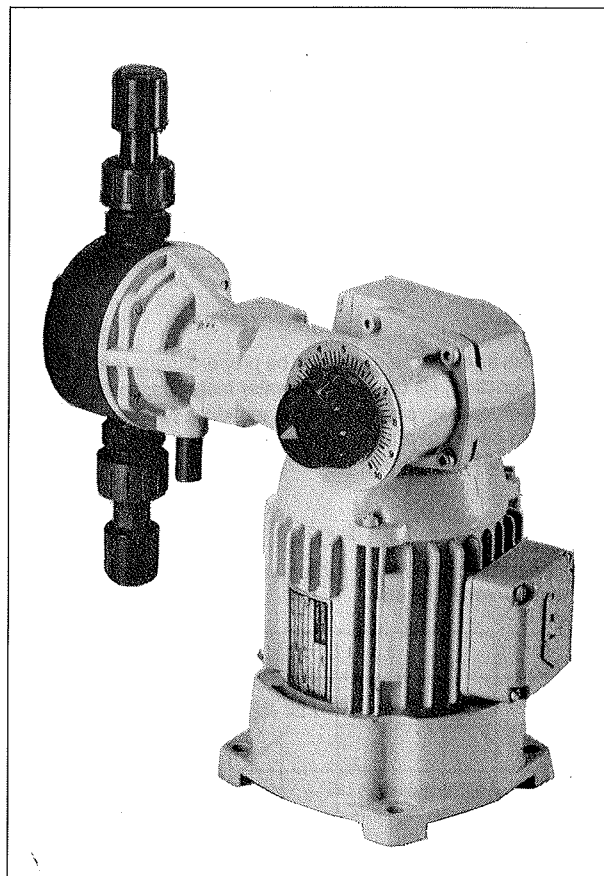
The Dosing Heads are available in uPVC (TM4 and TM8 also available in PVDF) and Stainless Steel. Special materials are available on request.

Suction and Discharge Valves are normally designed as double-ball valves. Spring-loaded single ball valves are recommended on the suction and discharge side for viscous media from approximately 400mPas. The opening pressure of the spring-loaded valves is approximately 0,1 bar.

Separating Chamber

The diaphragm flanges are designed so that in the event of cracks appearing in the diaphragm due to wear, chemical cannot escape uncontrollably from the pump, or penetrate the gear. All leakage is purposely deflected downwards through a drain pipe. The diaphragm flanges, therefore perform a separating chamber function, and are protected from aggressive media by an epoxy resin powder coating.

The escaping leakage can be detected by a Leak Detector, which can be used to switch off the pump.



Drive Unit

The gear consists of a single-stage worm reduction gear. The worm wheels and bearings are lubricated for life. The strokes are generated by an eccentric which moves the diaphragm through a spring-loaded plunger. The injection stroke is actuated by an eccentric and the suction stroke by the spring return. The stroke is adjusted manually or electrically (ATE). A 3-phase AC motor is supplied as standard for the drive and is an integral component of the pump structure. The motor cannot therefore be exchanged for other types of motors. Dosing Pumps with adjustable DC motors (ATG) or explosion-proof motors see MB 1 04 05.

Technical Data

Type MEMDOS	TM	4	8	10	15	23	45						
	ZTM	4 / 4	8 / 8	10 / 10	15 / 15	23 / 23	45 / 45						
Max. Pressure	bar	10											
Output at max. pressure	l/h	4	4	7,5	7,5	13	13	19	19	24	24	48	48
	mls/str.	2,6				8,3							
Stroke Frequency	l/min.	26		48		26		38		48		96	
Diaphragm diameter	mm	52				64							
Lift	mbar	120											
Max. Temperature	°C	40											
Drive Power	Watt	100											
Max. Power Supply	Watt	26	31	38	46	53	86						
Weight with PVC	TM	7											
Dosing Head	ZTM	8											
Weight with S/Steel	TM	9											
Dosing Head	ZTM	12											

MEMDOS™

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Optional Components

Stroke Counting

The Dosing Pump can be fitted on application with an inductive scanning head for counting the number of strokes.

ATE

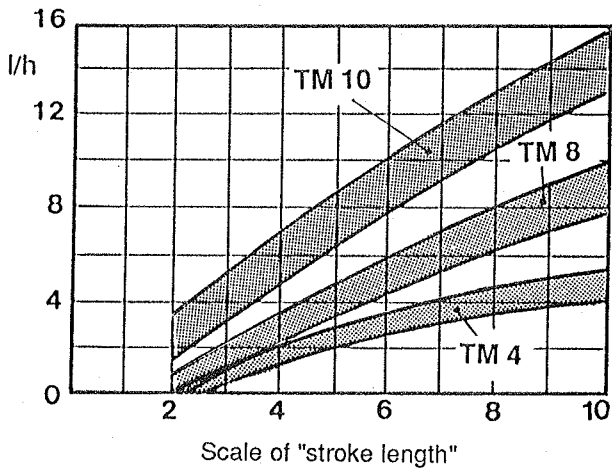
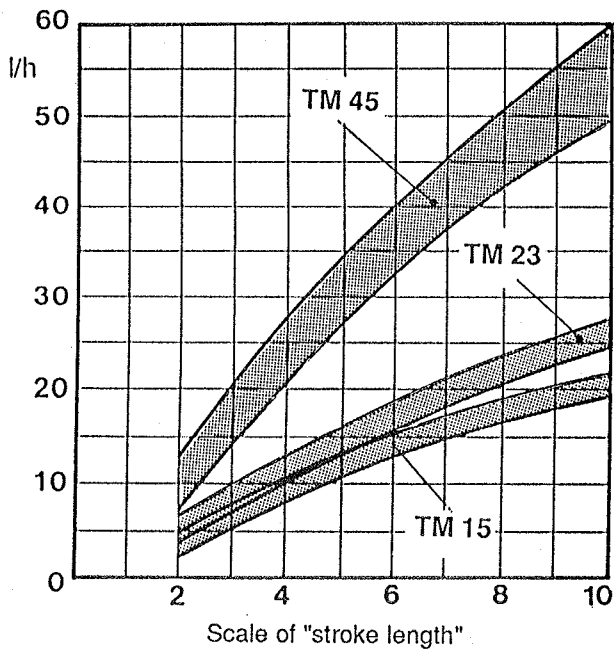
Electrical, reversible servo drive for remote-control setting of stroke length via a manually operated press key or a 3-point step controller. For details see Data Sheet MB 1 04 02 / 5.

Proportional Dosing

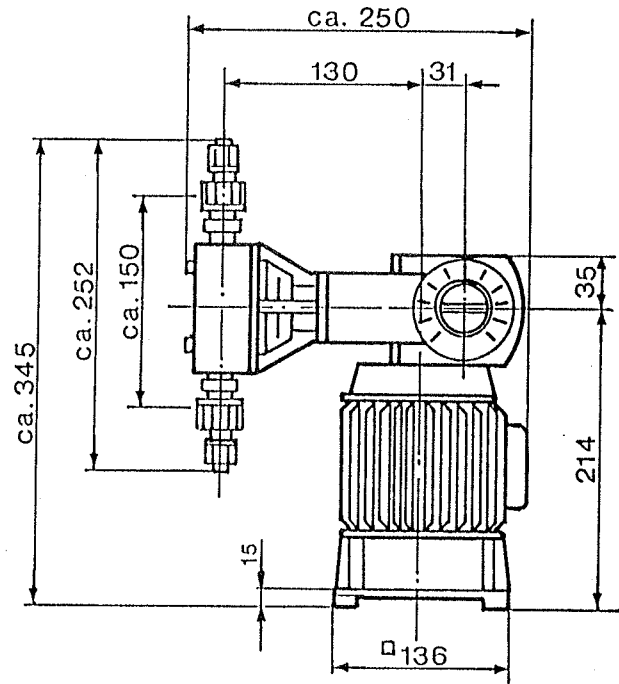
This enables the dosage to be proportionally readjusted as a function, for example, of water meter contacts, where each contact serves to set in motion a pumping time that can be set at a fixed time of 1 to 30 seconds. (See Data Sheet MB 1 34 01).

Output Curves

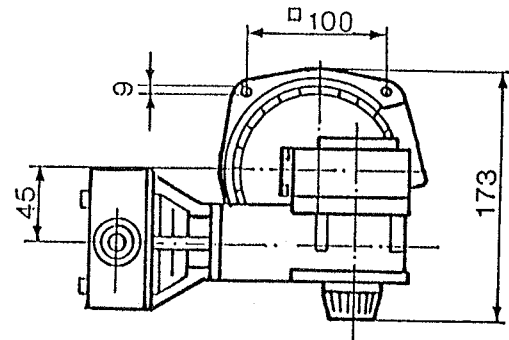
- Upper curve of the range for "open-ended" delivery
- Lower curve at 10 bar



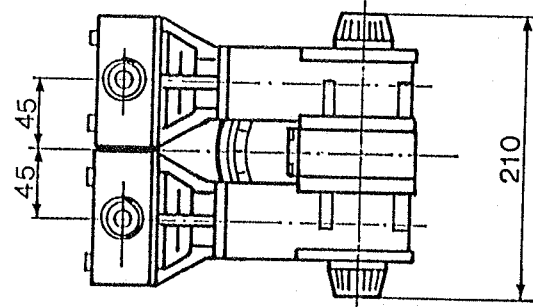
Performance Curves



TM



ZTM



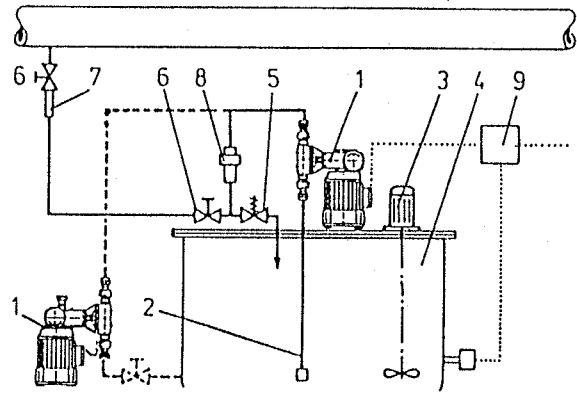
MEMDOS TM

MB 1 04 02 / 3

Typical Installation

Legend

1	Dosing Pump MEMDOS TM	MB 1 04 02
2	Suction Pipe	MB 1 22 01
3	Electric Agitator	MB 1 36 01
4	Tank	MB 1 20 01
5	Pressure Relief Valve	MB 1 25 01
6	Diaphragm Isolating Valve	MB 1 24 01
7	Injection Point	MB 1 23 01
8	Pulsation Damper	MB 1 27 01
9	Switchbox	



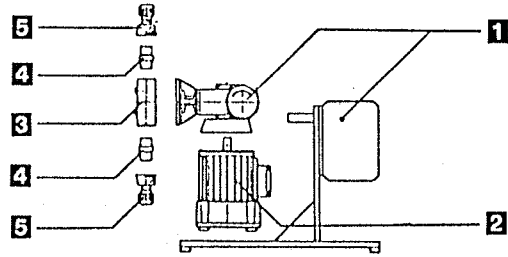
Selection Tables

In order to offer the user a wide variety of pumps, the Dosing Pumps have been divided into the most important functional groups. The Pump may be individually made up as required.

The user must make up the Pump from:

- 1** Gear **2** Motor **3** Dosing Head
- 4** Valves **5** Connections

The numbers of the pump drawing refer to the corresponding selection tables.



Pump type	1			
	with PTFE Diaphragm			
	Single Gear TM		Duplex Gear ZTM	
	Manual	ATE	Manual	ATE
TM 4	31.084	31.085	31.088	31.089
TM 8	31.086	31.087	31.090	31.091
TM 10	28.423	28.424	28.431	28.432
TM 15	28.425	28.426	28.433	28.434
TM 23	28.427	28.428	28.435	28.436
TM 45	28.429	28.430	28.437	28.438

Pump type	2			
	Standard-Motor 380/220V 0,1 kW, 50 Hz, IP 54, ISO-K1.B			
	Type	rpm	Current [A]	Part-No.
TM 4	63RFT0,12/4-71R	1440	0,44/0,76	23.366
TM 8	63RFT0,12/4-71R	1440	0,44/0,76	23.461
TM 10	63RFT0,12/4-71R	1440	0,44/0,76	23.366
TM 15	63RFT0,12/4-71R	1440	0,44/0,76	23.438
TM 23	63RFT0,12/4-71R	1440	0,44/0,76	23.461
TM 45	63RFT0,12/4-71R	1440	0,44/0,76	23.275

Pump type	3		
	Dosing head		
	PVC	PVDF	1.4571
TM 4	23.811	29.178	23.814
TM 8			
TM 10	23.909	---	23.911
TM 15			
TM 23			
TM 45			

Pump-type	4						
	TM 4 ... TM 8			TM 10 ... TM 45			
Housing Material	PVC	PVDF	1.4571	PVC		1.4571	
Seals	Viton	PTFE	PTFE	Viton	Hypalon	It C	
Double-ball valve	Suction	20.890	28.111	24.029	18.185	18.187	26.967
	Discharge	20.891	28.112	24.030	18.186	18.188	26.968
Spring-loaded valve	Suction	25.087	29.385	25.089	25.162	25.161	28.775
	Discharge	25.088	29.384	25.090	27.517	27.516	28.776

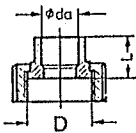
MEMDOS TM

MB 1 04 02 / 4

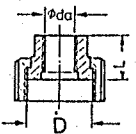
5										
Pump type	DN	Abb.	D	di	da	L	Part Number			
							PVC	PVDF	1.4571	
TM 4 TM 8	4	A	R 5/8	4	6	31	20.975	29.387	-	
		E		-	6	43	-	-	24.959	
	6	A		6	8	42	25.176	-	-	
		A		6	12	51	19.180	28.124	-	
		B		6	12	30	23.092	-	23.093	
		C		-	10	15	23.087	-	-	
		C		-	12	15	23.089	-	-	
		D		-	R 1/4	20	23.088	29.179	22.999	
		E		-	10	20	-	-	23.090	
		E		-	12	20	-	-	23.091	
TM 10 TM 15 TM 23 TM 45	4*	A	R 3/4	4	6	35	19.480	-	-	
		A		6	12	55	19.175	-	-	
	6	B		6	12	30	23.342	-	-	
		B1		d20	6	12	30	-	-	18.268
		C		R 3/4	-	10	15	25.167	-	-
		C		-	12	15	27.518	-	-	
		C		R 3/4	-	16	17	25.625	-	-
		D		6	R 1/4	20	25.165	-	-	
		D1		d20	6	R 1/4	20	-	-	82.105
		E1		6	8	25	-	-	27.519	

* not for TM 45

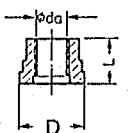
Solvent-cement "plain" bush for uPVC rigid tube
C



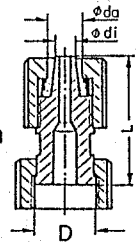
Threaded pipe connection
BSP or NPT as specified
D



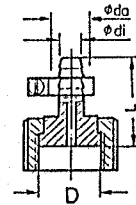
Threaded pipe connection
BSP or NPT as specified
D



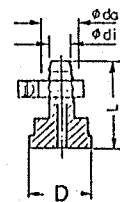
Locknut "clamp" connection for flexible tube
A



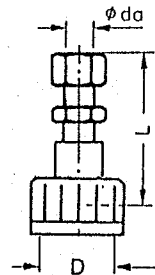
Hose clip connection for flexible tube
B



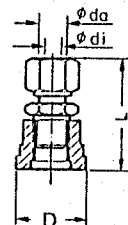
Hose clip connection for flexible tube
B1



Compression connection "Ermeto"
E



Compression connection "Ermeto"
E1



Example Order

For settling tank 20 lts/hr of precipitant, which is an aqueous solution, must be dosed. There is free non-pressure discharge at the dosing point. The chemical permits the use of the standard materials uPVC and Hypalon diaphragms with Hypalon seals.

Manually adjustable Dosing Pump TM23 is selected, with the materials uPVC and Hypalon. Because of the pressure from the higher tank, and because of the lack of the pressure, a Pressure Sustaining Valve according to Data Sheet MB 1 25 01 must necessarily be provided to prevent syphoning.

On the suction and discharge sides, a connection for uPVC solvent-cement jointing, dia. 10 mm, is selected.

The Pump therefore consists of the following components:

- | | |
|--|------------------------------------|
| 1 Gear | Part No. 28.427 |
| 2 Drive Motor for 380V AC | Part No. 23.461 |
| 3 uPVC Dosing Head | Part No. 23.909 |
| 4 uPVC Double-ball Valves
Suction Valve
Discharge Valve | Part No. 18.187
Part No. 18.188 |
| 5 Connections
Suction side
Discharge side | Part No. 25.167
Part No. 25.167 |

General

Dosing pumps for use as a correcting element in control circuits or control lines, can be equipped with electrical actuating (servo motor) drives, the stroke length can therefore be adjusted from remote electrical push button contacts or controllers with a relay output. In the case of duplex pumps, each dosing head may have a separate automatic/remote actuating drive and be adjusted independently.

These pumps are denoted by the letters ATE used as a suffix after the type:

e.g: TM 45 ATE

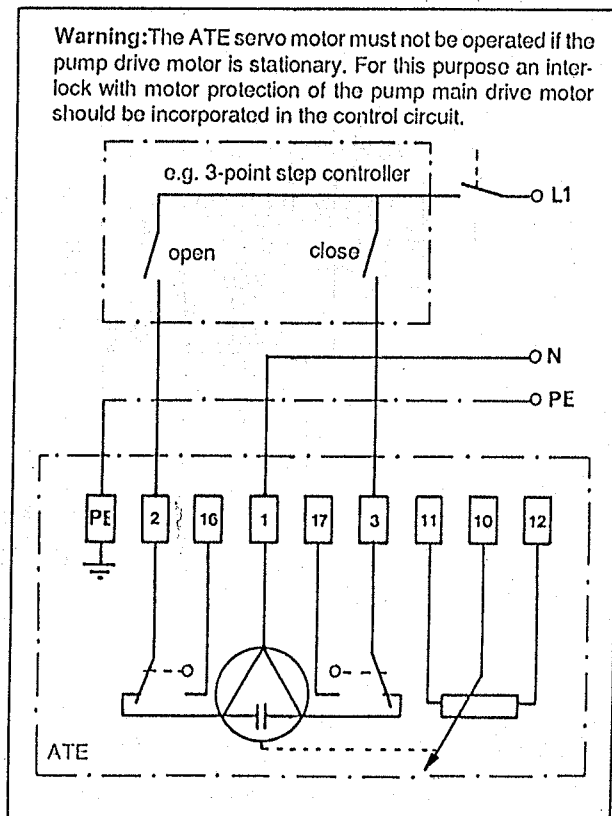
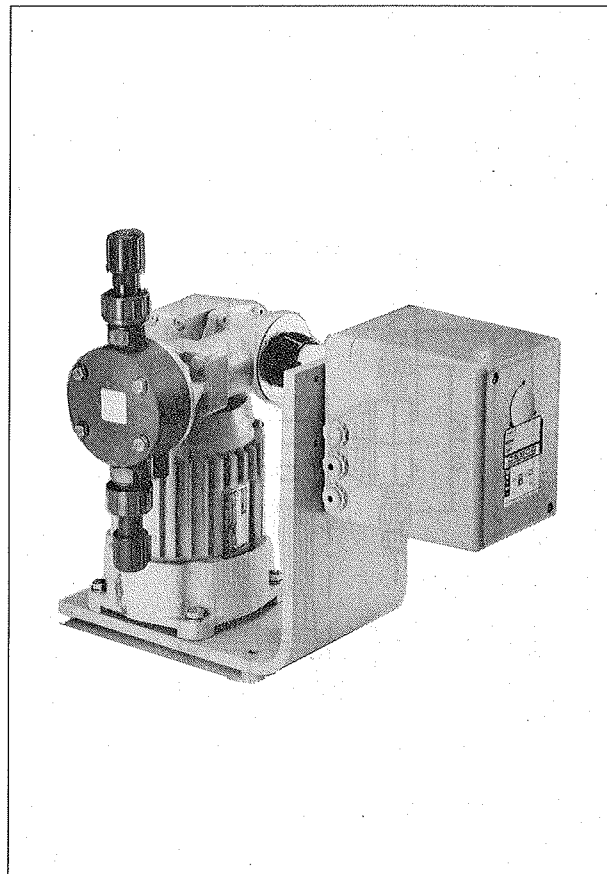
The non linearity of the characteristic performance curve of diaphragm dosing pumps is maintained despite the linear mechanics of the stroke adjustment. In the case of control systems without a feedback signal from the dosed solution (proportional dosing), consideration must be given to the characteristic curve of the dosing pump when setting up.

Actuating Drive

Construction:	Reversible AC motor with self locking reduction gear.
Mains Connection:	220-240V, 50-60Hz approx. 110-120/1/50-60 as specified
Regulating Distance:	270° for pump discharge from 0-max.
Regulating Time:	5,5 minutes 0-100%
Ambient Temp.:	Max. +45° C
Protection Type:	IP 54 according to DIN 40 050
Limit Switches:	Limit switches disengage the motor in the limit positions beyond an angle of rotation of 270°
Indication:	The stroke position is indicated in each case on a scale 0-10. The relevant discharge (output) rate is obtained from the diagram on Data Sheet MB 1 04 02 / 2.
Remote Indication:	A built-in potentiometer with a 130 Ohm overall resistance on the drive shaft of the servo motor enables continuous remote indication of the stroke position.
Weight:	Additional weight to basic Pump/Motor with single actuating drive including base plate: 11,4kg Additional weight to basic Pump/Motor with twin actuating drive including base plate: 19kg

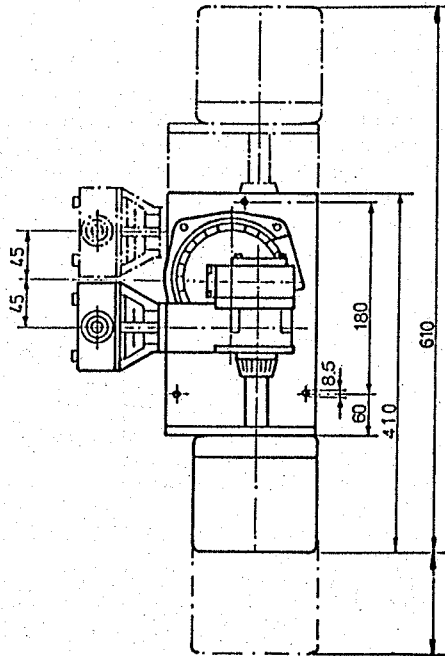
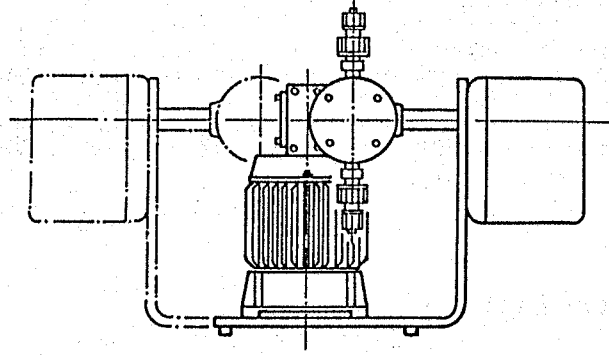
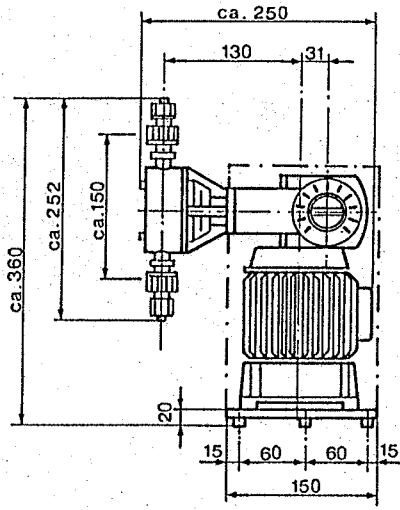
Special Versions

1. Potentiometers rated other than 130 ohms
2. Two additional limit switches (contacts rated 6 A, 250 V non-inductive).



MEMDOS TM - ATE

MB 1 04 02 / 6

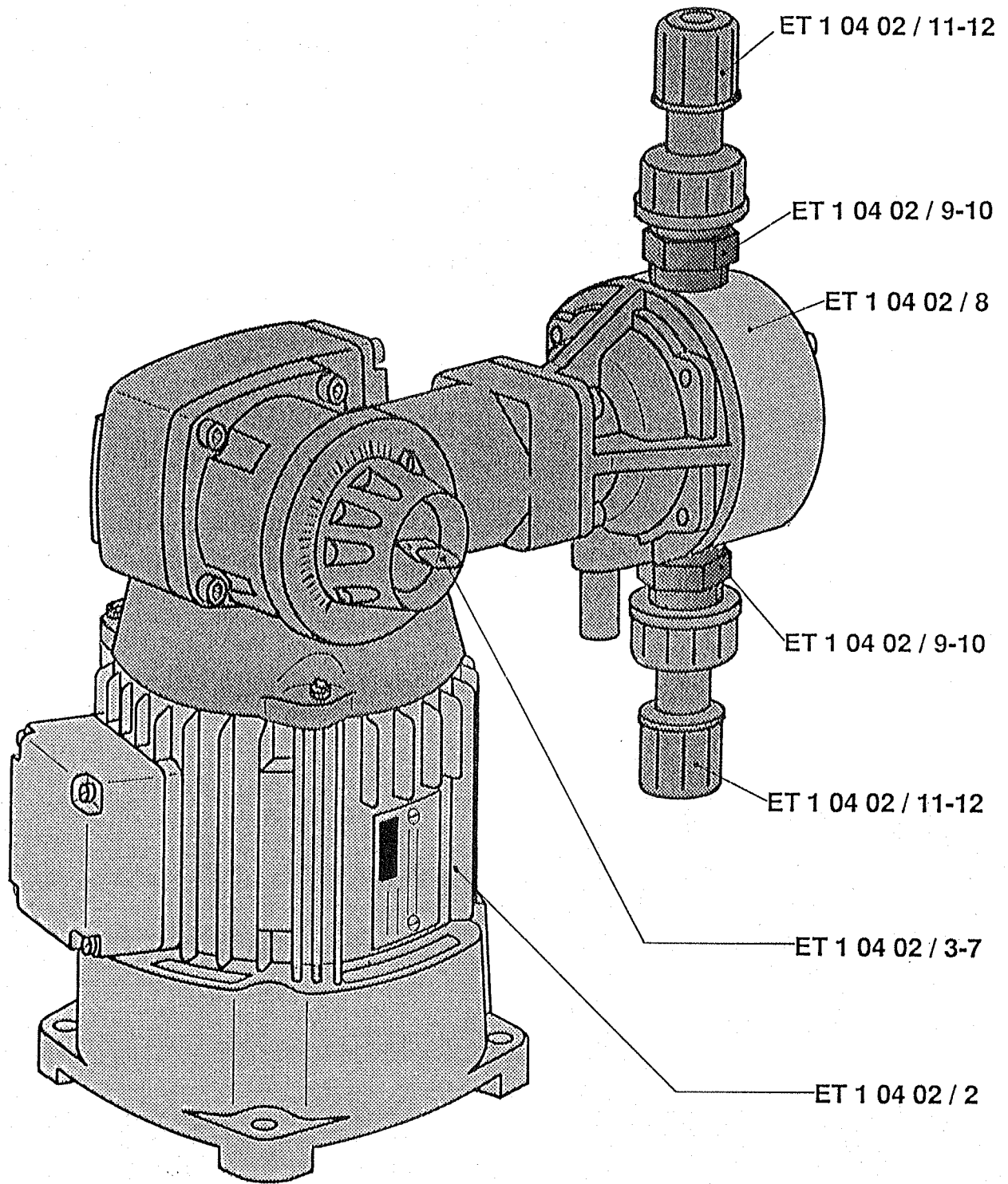


Mounting space
approx. 100 mm

MEMDOS TM

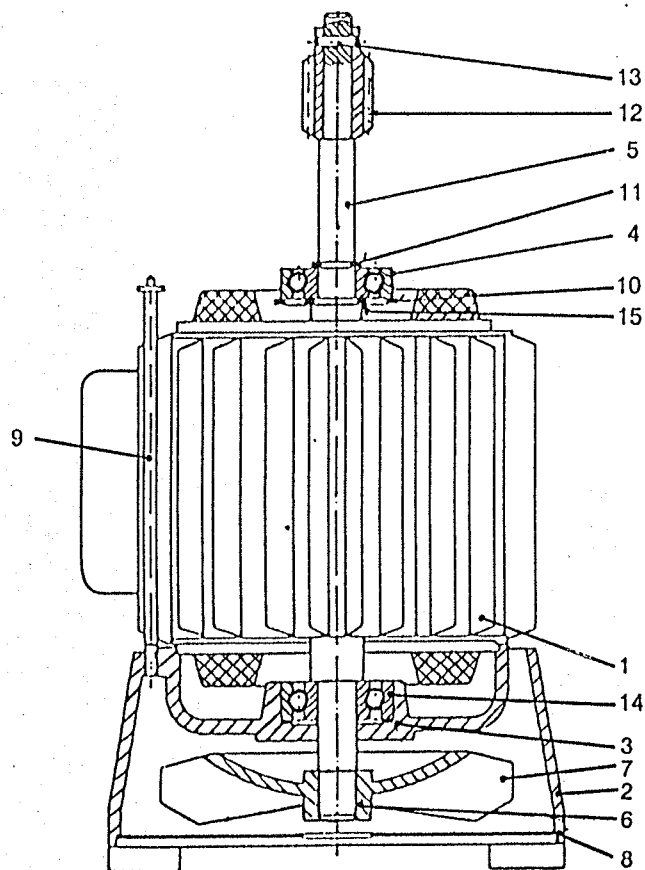
Spares

ET 1 04 02 / 1



MEMDOS TM

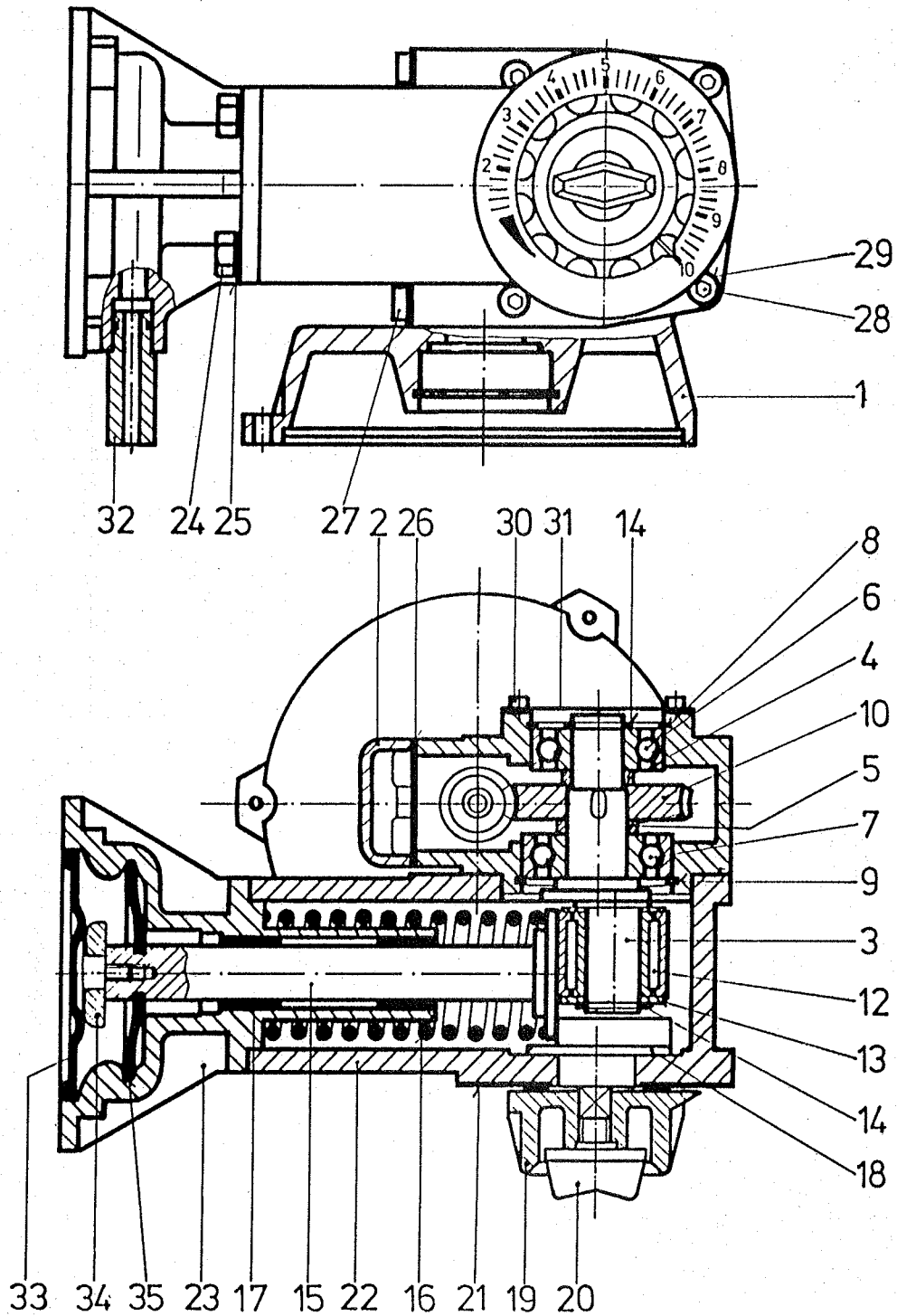
ET 1 04 02 / 2 Motor Spares



Item No.	Description	Part-Number	Motor Spares for Memdos TM					
			TM 4	TM 8	TM 10	TM 15	TM 23	TM 45
			23.366	23.461	23.366	23.438	23.461	23.275
1	Stator	21.261	1	1	1	1	1	1
2	Pump Base	21.251	1	1	1	1	1	1
3	Ball Race Shim	84.142	2	2	2	2	2	2
4	Ball Race	86.006	1	1	1	1	1	1
5	Rotor	21.260	1	1	1	1	1	1
6	Fan Wheel Securing Device	21.263	1	1	1	1	1	1
7	Fan Wheel	21.262	1	1	1	1	1	1
8	Footplate	21.257	1	1	1	1	1	1
9	Pull Rod	21.264	3	3	3	3	3	3
10	Circlip	84.012	1	1	1	1	1	1
11	Circlip	84.010	1	1	1	1	1	1
12	Worm	11.380	1	-	1	-	-	-
	Worm	11.378	-	-	-	1	-	-
	Worm	29.551	-	1	-	-	1	-
	Worm	11.376	-	-	-	-	-	1
13	Dowel Pin	83.414	1	1	1	1	1	1
14	Ball Race	86.015	1	1	1	1	1	1
15	Shim	84.138	1	1	1	1	1	1

MEMDOS TM

Simplex Drive ET 1 04 02 / 3



MEMDOS TM

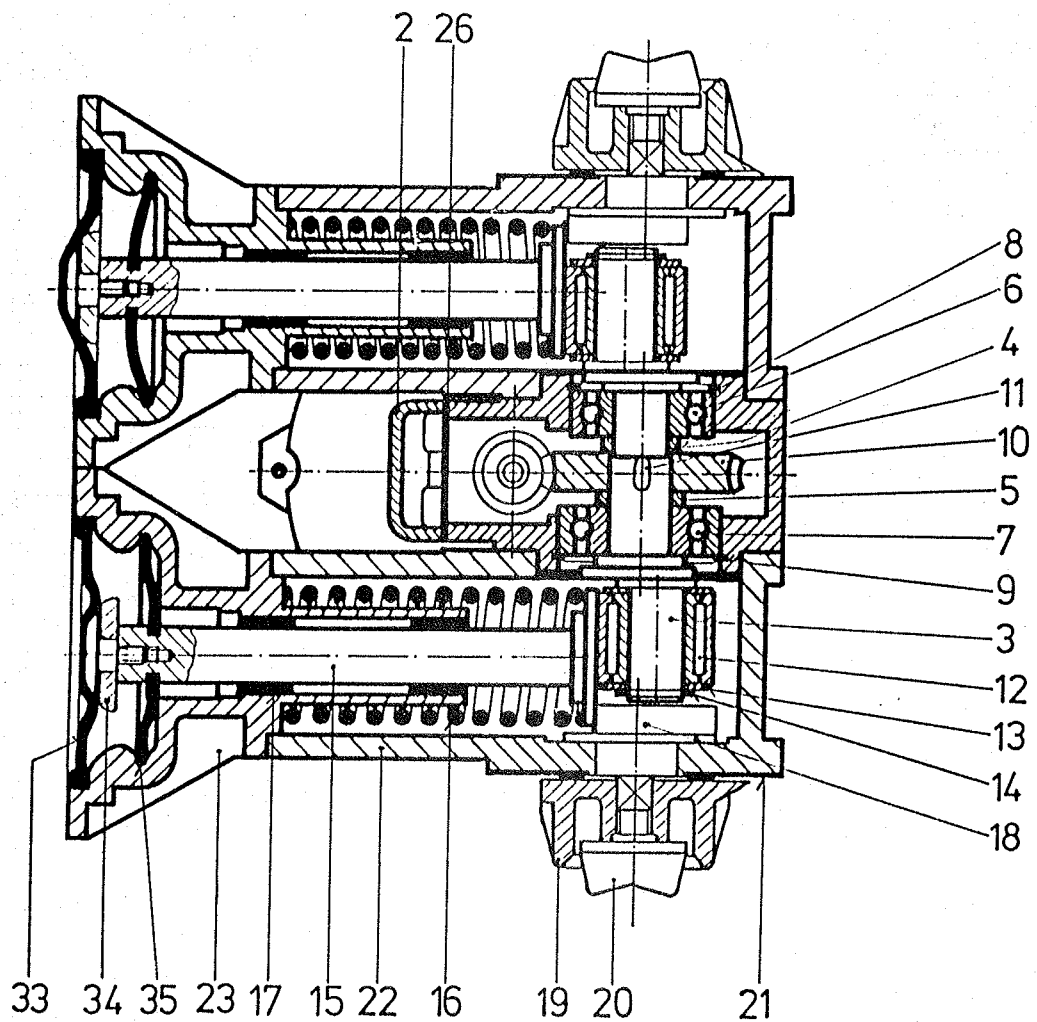
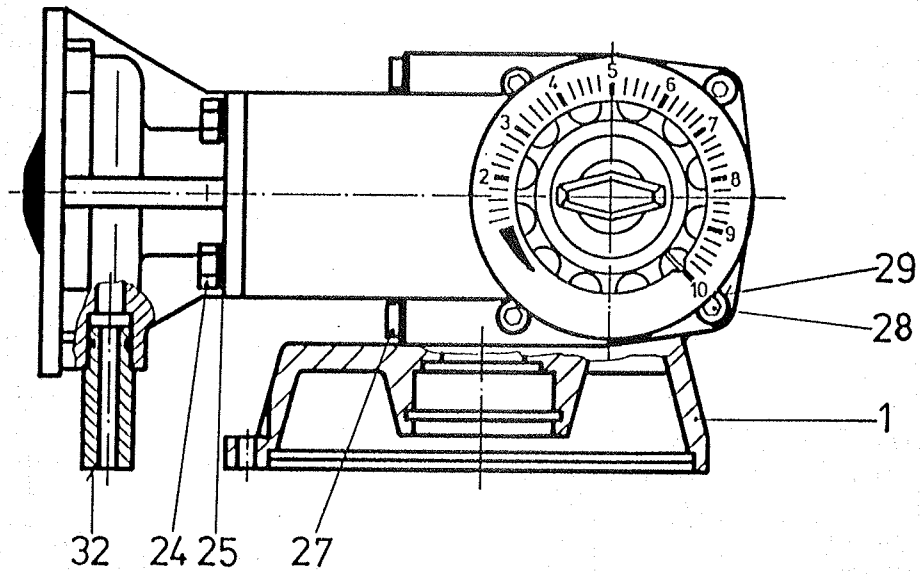
ET 1 04 02 / 4 Simplex Drive

Item	Description	Material	Part-No.	TM 4	TM 8	TM 10	TM 15	TM 23	TM 45
				31.084	31.086	28.423	28.425	28.427	28.429
1	Gearbox Housing	Al	21.252	1	1	1	1	1	1
2	Housing Cover	Al	21.211	1	1	1	1	1	1
3	Drive Shaft	St	21.295	-	-	1	1	1	1
	Drive Shaft	St	31.092	1	1	-	-	-	-
4	Spacer Ring	St	21.210	1	1	1	1	1	1
5	Spacer Ring	St	21.272	1	1	1	1	1	1
6	Ball Race	St	86.006	1	1	1	1	1	1
7	Ball Race	St	86.064	1	1	1	1	1	1
8	Circlip	St	84.012	1	1	1	1	1	1
9	Circlip	St	84.090	1	1	1	1	1	1
10	Worm Wheel	Bronze	21.294	1	-	1	-	-	-
	Worm Wheel	Bronze	18.014	-	-	-	1	-	-
	Worm Wheel	Bronze	29.552	-	1	-	-	1	-
	Worm Wheel	Bronze	18.160	-	-	-	-	-	1
11	Feather	St	83.406	1	1	1	1	1	1
12	Needle Bearing	St	86.098	-	-	1	1	1	1
	Needle Bearing	St	86.097	1	1	-	-	-	-
13	Shim	St	86.099	-	-	2	2	2	2
	Shim	St	21.209	2	2	-	-	-	-
14	Circlip	St	84.010	-	-	1	1	1	1
	Circlip	St	84.135	1	1	-	-	-	-
15	Diaphragm Rod	St	21.298	1	1	1	1	1	1
16	Compression Spring	St	18.177	1	1	1	1	1	1
17	Slide Bearing Bush	Bronze	19.377	2	2	2	2	2	2
18	Adjusting Cam	Plastic	28.421	-	-	1	1	1	1
	Adjusting Cam	Plastic	29.763	1	1	-	-	-	-
19	Adj. Control Knob	Plastic	29.764	1	1	1	1	1	1
20	Wing Nut	St/Plastic	83.661	1	1	1	1	1	1
21	Scale	Al	87.412	1	1	1	1	1	1
22	Eccentric Housing	Al	28.736	1	1	1	1	1	1
23	Intermediate Flange	Al	22.061	-	-	1	1	1	1
	Intermediate Flange	Al	31.094	1	1	-	-	-	-
24	Hex Screw	St	83.008	4	4	4	4	4	4
25	Washer	St	84.021	4	4	4	4	4	4
26	Flat Packing	Perbunan	21.270	1	1	1	1	1	1
27	Cheese Head Screw	St	83.048	4	4	4	4	4	4
28	Cheese Head Screw	St	83.001	4	4	4	4	4	4
29	Washer	St	84.000	4	4	4	4	4	4
30	Cheese Head Screw	St	83.026	4	4	4	4	4	4
31	Cap	St	21.266	1	1	1	1	1	1
32	Leakage Tube, compl.	PVC	25.174	1	1	1	1	1	1
33	Diaphragm d 64	EPDM	81.465	-	-	1	1	1	1
	Diaphragm d 52	EPDM	81.464	1	1	-	-	-	-
34	Mush. Support Head	Ms	28.977	-	-	1	1	1	1
35	Deflector Plate	Hypalon	22.056	-	-	1	1	1	1
	Deflector Plate	Hypalon	81.108	1	1	-	-	-	-
Drive complete with ATE adjustment				31.085	31.087	28.424	28.426	28.428	28.430

Improved changes are always reserved without notice

MEMDOS TM

Duplex Drive ET 1 04 02 / 5



MEMDOS TM

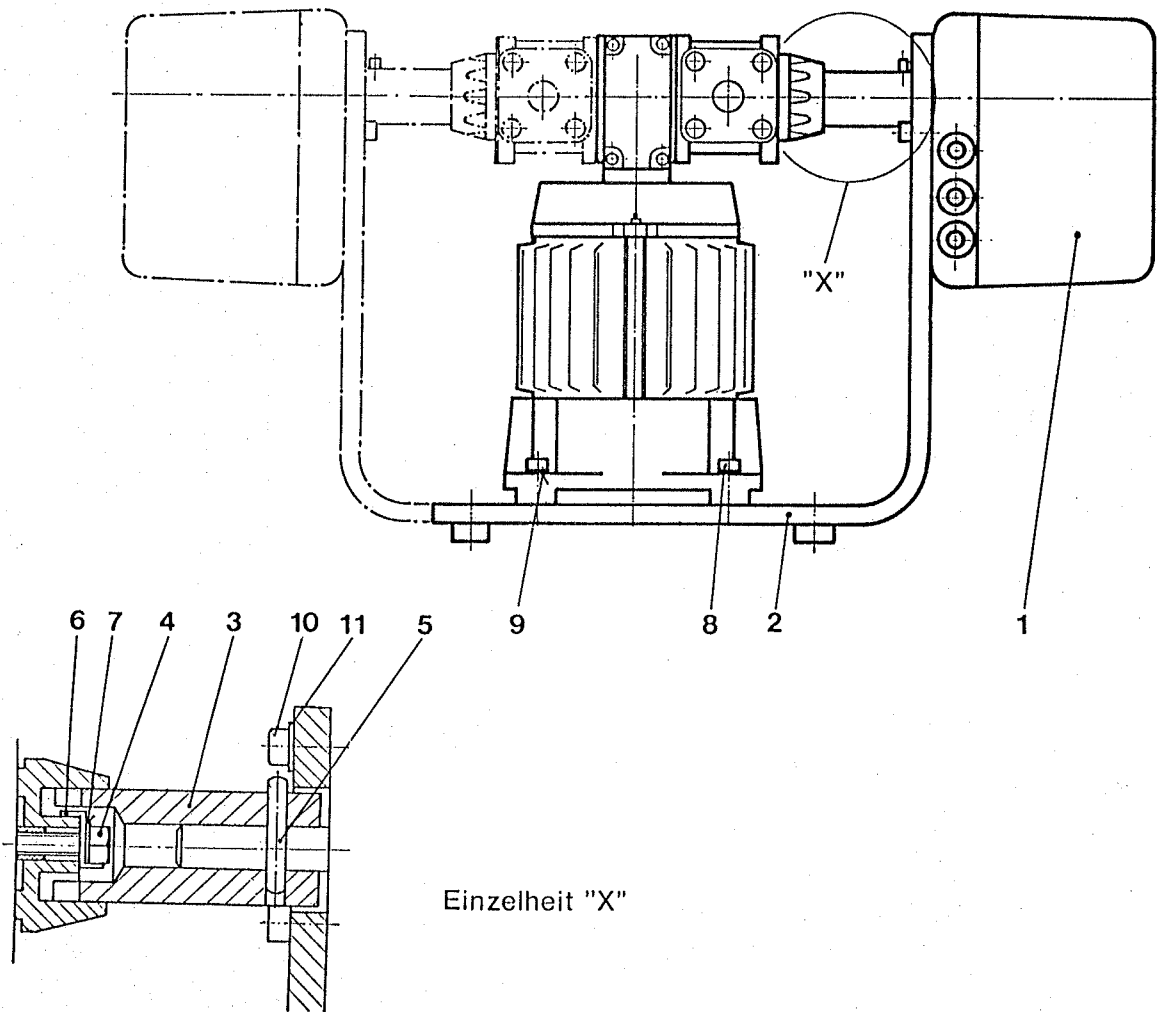
ET 1 04 02 / 6 Duplex Drive

Item	Description	Material	Part-No.	ZTM 4	ZTM 8	ZTM 10	ZTM 15	ZTM 23	ZTM 45
				31.088	31.090	28.431	28.433	28.435	28.437
1	Gearbox Housing	Al	21.268	1	1	1	1	1	1
2	Housing Cover	Al	21.211	1	1	1	1	1	1
3	Drive Shaft	St	21.280	-	-	1	1	1	1
	Drive Shaft	St	31.093	1	1	-	-	-	-
4	Spacer Ring	St	21.210	1	1	1	1	1	1
5	Spacer Ring	St	21.272	1	1	1	1	1	1
6	Ball Race	St	86.006	1	1	1	1	1	1
7	Ball Race	St	86.064	2	2	2	2	2	2
8	Circlip	St	84.012	1	1	1	1	1	1
9	Circlip	St	84.090	1	1	1	1	1	1
10	Worm Wheel	Bronze	21.294	1	-	1	-	-	-
	Worm Wheel	Bronze	18.014	-	-	-	1	-	-
	Worm Wheel	Bronze	29.552	-	1	-	-	1	-
	Worm Wheel	Bronze	18.160	-	-	-	-	-	1
11	Feather	St	83.406	1	1	1	1	1	1
12	Needle Bearing	St	86.098	-	-	2	2	2	2
	Needle Bearing	St	86.097	2	2	-	-	-	-
13	Shim	St	86.099	-	-	4	4	4	4
	Shim	St	21.209	4	4	-	-	-	-
14	Circlip	St	84.010	-	-	2	2	2	2
	Circlip	St	84.135	2	2	-	-	-	-
15	Diaphragm Rod	St	21.298	2	2	2	2	2	2
16	Compression Spring	St	18.177	2	2	2	2	2	2
17	Slide Bearing Bush	Bronze	19.377	4	4	4	4	4	4
18	Adjusting Cam	Plastic	28.421	-	-	2	2	2	2
	Adjusting Cam	Plastic	29.763	2	2	-	-	-	-
19	Adj. Control Knob	Plastic	29.764	2	2	2	2	2	2
20	Wing Nut	St/Plastic	83.661	2	2	2	2	2	2
21	Scale	Al	87.412	2	2	2	2	2	2
22	Eccentric Housing	Al	28.736	2	2	2	2	2	2
23	Intermediate Flange	Al	22.061	-	-	2	2	2	2
	Intermediate Flange	Al	31.094	2	2	-	-	-	-
24	Hex. Screw	St	83.008	8	8	8	8	8	8
25	Washer	St	84.021	8	8	8	8	8	8
26	Flat Packing	Perbunan	21.270	1	1	1	1	1	1
27	Cheese Head Screw	St	83.048	4	4	4	4	4	4
28	Cheese Head Screw	St	83.001	8	8	8	8	8	8
29	Washer	St	84.000	8	8	8	8	8	8
32	Leakage Tube compl.	PVC	25.174	2	2	2	2	2	2
33	Diaphragm d 64	EPDM	81.465	-	-	2	2	2	2
	Diaphragm d 52	EPDM	81.464	2	2	-	-	-	-
34	Mush. Support Head	Ms	28.977	-	-	2	2	2	2
35	Deflector Plate	Hypalon	22.056	-	-	2	2	2	2
	Deflector Plate	Hypalon	81.108	2	2	-	-	-	-
38	Grub Screw	St	83.025	1	1	1	1	1	1
Drive complete with ATE adjustment				31.089	31.091	28.432	28.434	28.436	28.438

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MEMDOS TM

ATE-Drive ET 1 04 02 / 7

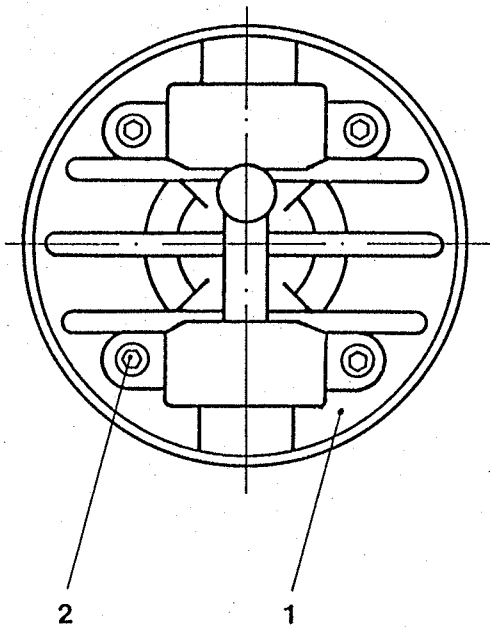


Item	Description	Material	Part-No.	TM 4 - 45	ZTM 4 - 45
				28.728	28.732
1	ATE Control Drive	Various	78.747	1	2
2	Baseplate-Simplex	Al	29.978	1	-
	Baseplate-Duplex	Al	28.731	-	1
3	Coupling	PE	28.729	1	2
4	Hex Head Screw	A2	83.442	1	2
5	Dowel Pin	St	83.640	1	2
6	Washer with flange	St	84.172	1	2
7	Spring Washer	Spring Steel	84.173	1	2
8	Cylinder Head Screw	St	83.043	4	4
9	U-Washer	St	84.026	4	4
10	Cylinder Head Screw	A2	83.619	4	8
11	U-Washer	St	84.021	4	8
12	Cylinder Head Screw	St	83.423	2	4

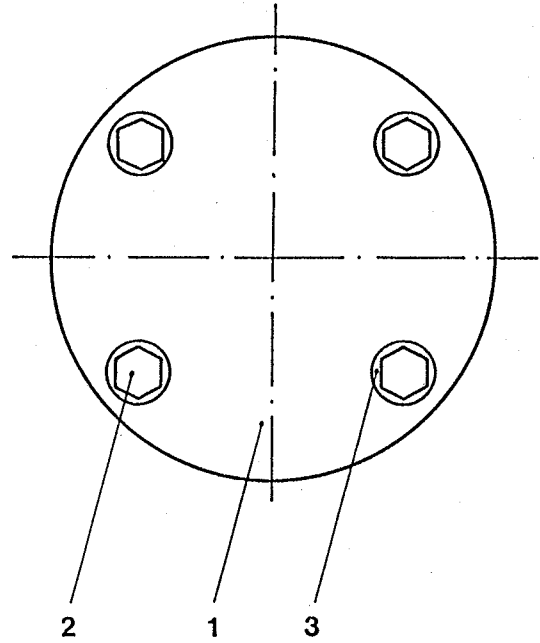
MEMDOS TM

ET 1 04 02 / 8 Dosing Head

TM 4 und TM 8



TM 10 ... TM 45

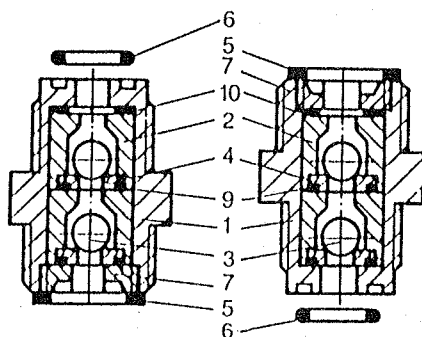


Item	Description	Material	Part-No.	Dosing Head complete				
				TM 4 and TM 8			TM 10 ... TM 45	
				PVC	PVDF	1.4571	PVC	1.4571
				23.811	29.178	23.814	23.909	23.911
1	Diaphragm Housing	PVC	22.399	1	-	-	-	-
		PVDF	28.689	-	1	-	-	-
		1.4571	21.613	-	-	1	-	-
		PVC	18.113	-	-	-	1	-
		1.4571	23.912	-	-	-	-	1
2	Screw	A2	83.409	4	4	4	-	-
		A2	83.110	-	-	-	4	4
3	Washer	A2	84.160	-	-	-	4	4

MEMDOS™

Valves for TM 4 and TM 8 ET 1 04 02 / 9

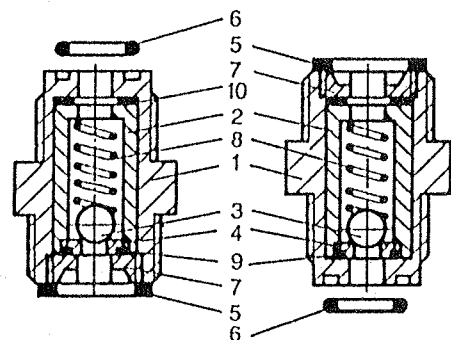
Double-ball Valve



Suction

Discharge

Spring-loaded Valve



Suction

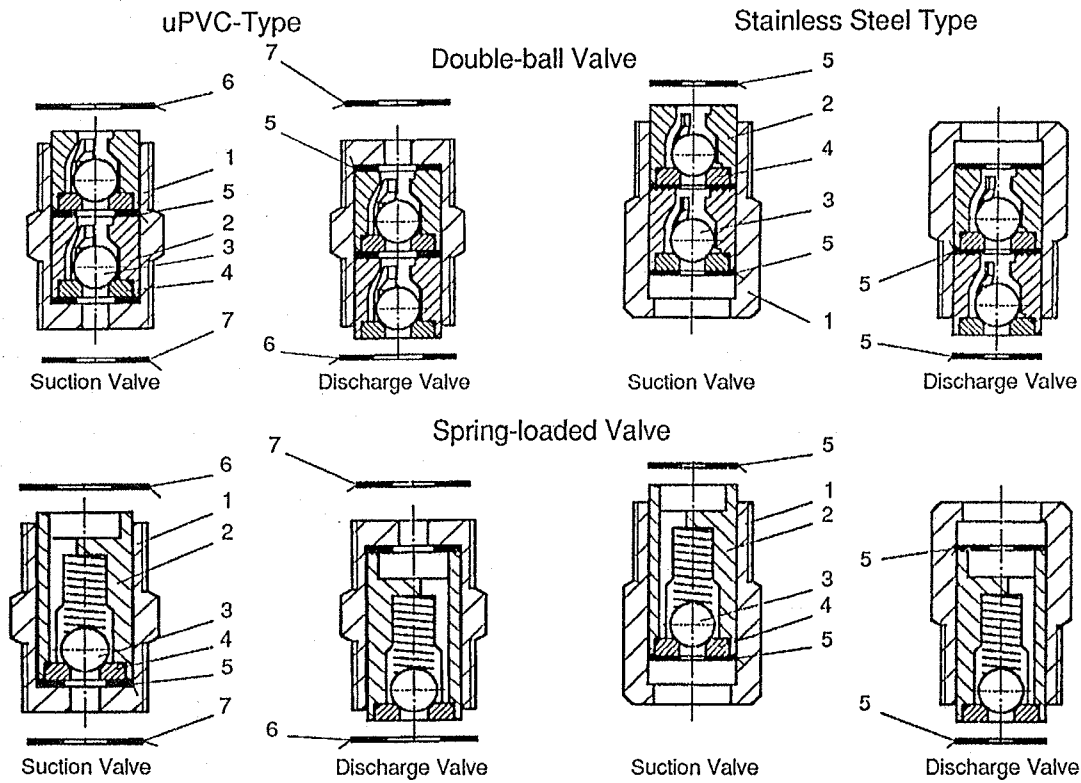
Discharge

Item	Description	Part-No.	Material	Double-ball Valve			Spring loaded Valve		
				PVC	PVDF	1 4571	PVC	PVDF	1.4571
1	Valve Body	20.845	PVC	1	-	-	1	-	-
		28.108	PVDF	-	1	-	-	1	-
		19.289	1.4571	-	-	1	-	-	1
2	Ball Guide	19.294	PVC	2	-	-	2	-	-
		28.109	PVDF	-	2	-	-	2	-
		19.293	1.4571	-	-	2	-	-	2
		24.066	PVC	-	-	-	1	-	-
		29.386	PVDF	-	-	-	-	1	-
		27.223	1.4571	-	-	-	-	-	1
3	Valve Ball	29.778	Glas	2	2	-	1	1	-
		18.044	1.4401	-	-	2	-	-	1
4	Valve seat	81.460	PVDF	2	2	2	1	1	1
5	Flat Packing	81.138	Viton	1	-	-	1	-	-
		81.580	PTFE	-	1	1	-	1	1
6	O Ring	81.384	Viton	1	-	-	1	-	-
		80.617	PTFE	-	1	1	-	1	1
7	Packing	19.299	PVC	1	-	-	1	-	-
		28.110	PVDF	-	1	-	-	1	-
		24.031	1.4571	-	-	1	-	-	1
8	Valve Spring	25.081	Hastelloy	-	-	-	1	1	1
9	O Ring	80.013	Viton	2	-	-	1	-	-
		80.627	PTFE	-	2	2	-	1	1
10	Flat Packing	81.526	Viton	1	-	-	1	-	-
		81.585	PTFE	-	1	1	-	1	1
Suction Valve complete				20.890	28.111	24.029	25.087	29.385	25.089
Discharge Valve complete				20.891	28.112	24.030	25.088	29.384	25.090

MEMDOS TM

ET 1 04 02 / 10

Valves for TM 10 . . . TM 45



Item	Description	Material	Part No.	Double-ball Valve						Spring-loaded Valve					
				Suction Valve			Discharge Valve			Suction Valve			Discharge Valve		
				PVC	1.4571	PVC	1.4571	PVC	1.4571	PVC	1.4571	PVC	1.4571		
				Sealing Material: H=Hypalon, V=Viton, AF=asbestos free											
	H	V	AF	H	V	AF	H	V	AF	H	V	AF			
	18.187	18.185	26.967	18.188	18.186	26.968	25.161	25.162	28.775	27.516	27.517	28.776			
1	Valve Housing	PVC	18.189	1	1	—	1	1	—	1	1	—	1	1	—
		1.4571	19.601	—	—	1	—	—	1	—	—	1	—	—	1
2	Ball Bearing	PVC	82.405	2	2	—	2	2	—	—	—	—	—	—	
		1.4581	82.102	—	—	2	—	—	2	—	—	—	—	—	
		PVC	23.412	—	—	—	—	—	—	1	1	—	1	1	—
		1.4571	25.169	—	—	—	—	—	—	—	—	1	—	—	1
*3	Valve Ball	Keramik	10.017	2	2	—	2	2	—	1	1	—	1	1	—
		1.4401	10.136	—	—	2	—	—	2	—	—	1	—	—	1
*4	Valve Seat	PVC	82.406	2	2	—	2	2	—	1	1	—	1	1	—
		1.4571	82.103	—	—	2	—	—	2	—	—	1	—	—	1
*5	Flat Gasket Ring	Hypalon	81.037	2	—	—	2	—	—	1	—	—	1	—	—
		Viton	81.138	—	2	—	—	2	—	—	1	—	—	1	—
		AF	81.625	—	—	3	—	—	3	—	—	2	—	—	2
*6	Flat Gasket Ring	Hypalon	81.033	1	—	—	—	—	—	1	—	—	—	—	—
		Viton	81.285	—	1	—	—	—	—	—	1	—	—	—	—
		Hypalon	81.041	—	—	—	1	—	—	—	—	—	1	—	—
		Viton	81.141	—	—	—	—	1	—	—	—	—	—	1	—
*7	Flat Gasket Ring	Hypalon	81.033	—	—	—	1	—	—	—	—	—	1	—	—
		Viton	81.285	—	—	—	—	1	—	—	—	—	—	1	—
		Hypalon	81.041	1	—	—	—	—	—	1	—	—	—	—	—
		Viton	81.141	—	1	—	—	—	—	—	1	—	—	—	—
*8	Valve Spring	Hastelloy	25.082	—	—	—	—	—	—	1	1	1	1	1	1

Improved changes are always reserved without notice.

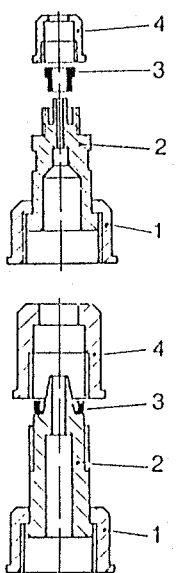
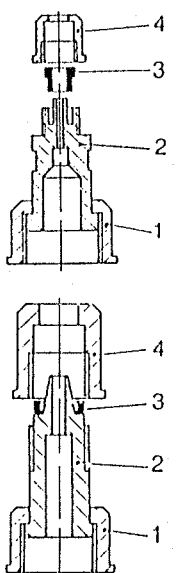
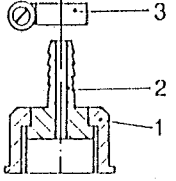
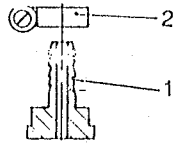
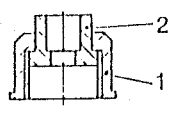
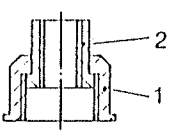
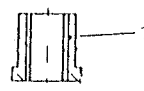
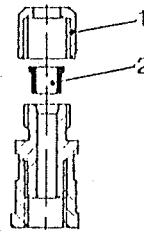
MEMDOS TM

Connections for TM 4 and TM 8 ET 1 04 02 / 11

Connection type	Material	Size	Conn. complete Part No.	Item	Ersatzteile	
					Description	Part-No.
	PVC	4/6	20.975	1	Screw Cap	82.087
				2	Connection	88.012
		3	Clamping Ring	88.003		
		4	Screw Cap	88.004		
		6/8	25.176	1	Screw Cap	82.087
				2	Connection	31.370
	6/12	19.180	4	Screw Cap	19.397	
			1	Screw Cap	82.087	
	2	Connection	18.094			
	3	Clamping Ring	10.178			
	4	Screw Cap	82.139			
	PVDF	4/8	29.387	1	Screw Cap	28.120
2				Connection	88.028	
3		Clamping Ring	88.003			
4		Screw Cap	88.004			
6/12		28.124	1	Screw Cap	28.120	
			2	Connection	28.121	
3	Clamping Ring	10.178				
4	Screw Cap	28.122				
	PVC	6/12	23.092	1	Screw Cap	82.087
				2	Hose Connection	18.042
	3	Hose Clip Con.	82.398			
	1.4571	6/12	23.093	1	Screw Cap	19.303
				2	Hose Connection	18.045
	3	Hose Clip Con.	82.398			
	PVC	10	23.087	1	Screw Cap	82.087
				2	Solvent Cement Con.	82.014
	12	23.089	1	Screw Cap	82.087	
			2	Solvent Cement Con.	82.013	
	PVC	R 1/4	23.088	1	Screw Cap	82.087
				2	Threaded Pipe Con.	82.185
	PVDF	R 1/4	29.179	1	Screw Cap	28.120
				2	Threaded Pipe Con.	28.292
	1.4571	R 1/4	22.999	1	Screw Cap	19.303
				2	Threaded Pipe Con.	82.186
	1.4571	6	24.959	1	Screw Cap	88.034
				2	Cutting Ring	88.035
		8	82.192	1	Screw Cap	88.036
				2	Cutting Ring	88.037
		10	23.090	1	Screw Cap	88.038
				2	Cutting Ring	88.039
		12	23.091	1	Screw Cap	88.040
				2	Cutting Ring	88.041

MEMDOS TM

ET 1 04 02 / 12 Connections for TM 10 . . . TM 45

	Connection type	Material	Size	Conn. complete Part No.	Item	Spare Part	
						Description	Part-No.
	A	PVC	4/6	19.480	1	Screw Cap	82.156
					2	Connection	88.012
					3	Clamping Ring	88.003
					4	Screw Cap	88.004
			6/12	19.175	1	Screw Cap	82.156
					2	Connection	18.094
					3	Cutting Ring	10.178
					4	Screw Cap	82.139
	B	PVC	6/12	23.342	1	Screw Cap	82.156
					2	Hose Connection	18.042
					3	Hose Clip Conn.	82.398
	B1	1.4571	6/12	23.426	1	Hose Connection	18.268
					2	Hose Clip Conn.	82.398
	C	PVC	10	25.167	1	Screw Cap	82.156
					2	Solvent Cement Con.	82.014
			12	27.518	1	Screw Cap	82.156
					2	Solvent Cement Con.	82.013
					16	25.625	1
2	Bush	22.508					
	D	PVC	R 1/4	25.165	1	Screw Cap	82.156
					2	Threaded Pipe Conn.	82.185
	D1	1.4571	R 1/4	82.105	1	Bush	82.105
	E1	1.4571	8	27.519	1	Screw Cap	88.036
					2	Cutting Ring	88.037
			10	23.427	1	Screw Cap	88.038
					2	Cutting Ring	88.039
			12	23.428	1	Screw Cap	88.040
					2	Cutting Ring	88.041

MEMDOS TM

Operating and Maintenance Instructions BW 1 04 02 / 1

Technical Data

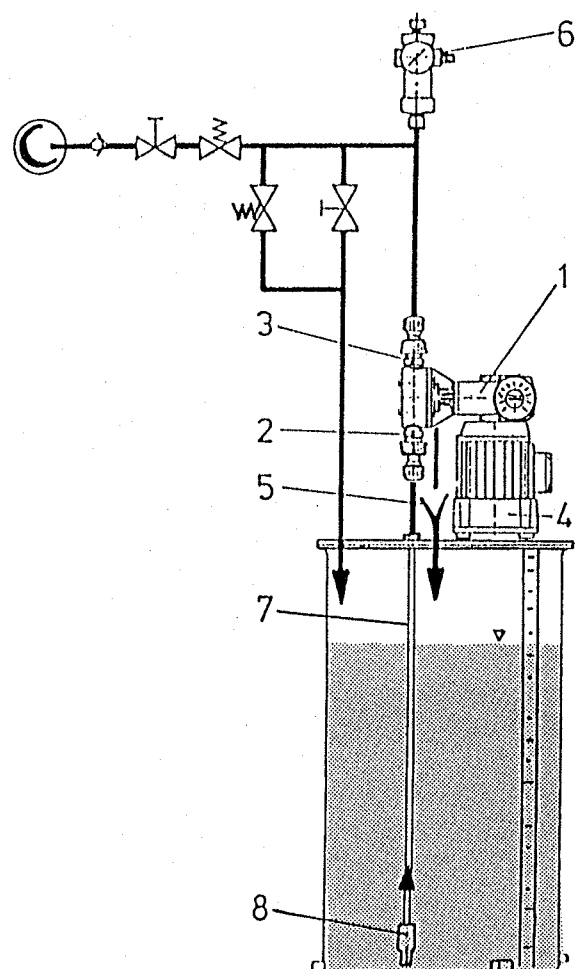
Type MEMDOS	TM	4	8	10	15	23	45						
	ZTM	4 / 4	8 / 8	10 / 10	15 / 15	23 / 23	45 / 45						
Max. Pressure	bar	10											
Output at max. pressure	l/h	4	4	7,5	7,5	13	13	19	19	24	24	48	48
	mls/str.	2,6						8,3					
Stroke Frequency	l/min.	26		48		26		38		48		96	
Diaphragm diameter	mm	52						64					
Lift	mbar	120											
Max. Temperature	°C	40											
Drive Power	Watt	100											
Max. Power Supply	Watt	26		31		38		46		53		86	
Weight with PVC	TM	7											
Dosing Head	ZTM	8											
Weight with S/Steel	TM	9											
Dosing Head	ZTM	12											

Installation

1. Only install the Dosing Pump (1) with suction and discharge valves (2 and 3) in the vertical position and firmly fix the base.
2. The pipes must not exert any force on the suction and discharge valves.
3. Run drainage from the separating chamber downward to the collection tank.
Note: Under no circumstances must the drainage pipe be returned through the tank cover to the medium, because other wise escaping gases may penetrate the pump gear. The drain pipe may only be fed into a gas-free collection tank by gravity, or it must be fed by gravity to a collection funnel (5) above which it must then terminate with sufficient free space. Leakage can then be returned via the funnel (5) through the tank cover. Moreover any leakage that exists can be seen at the funnel (5).
4. In the case of pipe lengths of over 10 metres, relatively small pipe cross-sections and higher viscosities, check whether Pulsation Damper (5) is required.
5. Provide suction pipe (7) with intake filter and footvalve (8).
6. Provide and adjust the motor safety switch (starter overload) according to the motor data.

Commissioning

1. Switch on the Dosing Pump motor.
2. Set the Pump to max. output and start without back pressure
3. If the Pump does not self-prime, unscrew the discharge valve and fill the pump head with liquid. Replace the discharge valve and switch on the pump again.
4. When delivery has started, adjust to the required output rate.



Maintenance

The MEMDOS TM Dosing Pump operates maintenance-free. The gear is supplied with molybdenum disulphide lubricant for long service life, but it is still recommend to change the gears after 5000 hours if the pump is operating continuously.

CAUTION! DO NOT USE OIL.

MEMDOS TM

BW 1 04 02 / 2 Operating and Maintenance Instructions

Fault Analysis and Elimination

Nature of Fault	Possible Cause	Remedy
Pump not delivering	Valves leaking	Clean valves and bleed. (See also commissioning of pump). Firmly tighten screw connections.
	Valves are incorrectly installed	Reassemble valve making sure that the valve balls of the suction and discharge valves are located above the valve seats.
	No lifting movement present	Return spring broken. Replace spring Pay attention to density of medium! Lift to great.
Pump delivers too little or irregularly	Indicator is loose. Incorrect delivery indicated	Drain pump head and resecure indicator
	Valve blocked or leaking	Clean valves and reseal
Pump delivering too much	Pressure on suction side too high (Pump syphoning)	Install Pressure Sustaining Valve in discharge line
Frequent diaphragm ruptures	Diaphragm was not screwed into the rod up to the stop	Screw in new diaphragm to stop
	Pressure peaks due to too long or too narrow a pipe	Change pipe or install Pulsation Damper. Fit Pressure Relief Valves for added safety. (See Installation Example)
Pump making loud noises	Roller bearing defective. gear has no molybdenum disulphide	Replace roller bearings. Replace Molycote
Motor humming and will not start	Incorrect connection. Capacitor defective, incorrect size or incorrectly connected	Check electrical system. Correctly clamp capacitor or replace
	Pressure too high	Check specification

If the fault cannot be corrected on the basis of the above data, the pump must be returned to the factory, or contact our Service Department to determine what further measures to take. Repairs are carried out immediately.

MEMDOS™ - ATE

Operating and Maintenance Instructions BW 1 04 02 / 3

General

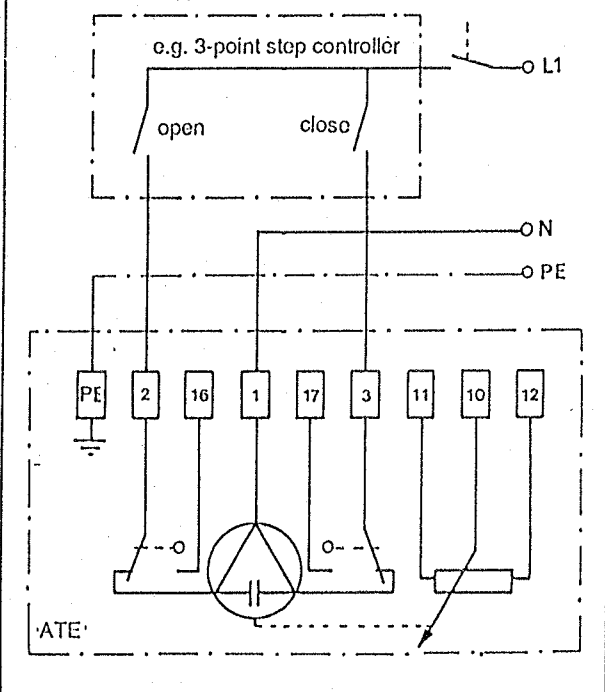
The Dosing Pump must be installed in accordance with the Operating and Maintenance Instructions 1 04 02 /1-2. Only the supplementary data for ATE drive versions are given below.

Actuating Drive

Construction:	Reversible AC Motor with self locking reduction gear.
Mains Connection:	220-240 V, 50-60 Hz approx. 110-120/1/50-60 as specified
Regulating Distance:	270° for pump discharge from 0 - max.
Regulating Time:	5,5 minutes 0-100%
Ambient Temp.:	Max +45° C
Protection Type:	IP54 according to DIN 40 050
Limit Switches:	Limit switches disengage the motor in the limit positions beyond an angle of rotation of 270°
Indication:	The stroke position is indicated in each case on a scale 0 - 10. The relevant discharge (output) rate is obtained from the diagram on Data Sheet MB 1 04 02 /2.
Remote Indication:	A built-in potentiometer with a 130 ohm overall resistance on the drive shaft of the servo motor enables continuous remote indication of the stroke position
Weight:	Additional weight to basic Pump/Motor with single actuating drive including base plate: 11,4 kg Additional weight to basic duplex Pump/Motor with twin actuating drive including base plate: 19 kg

Wiring Diagram

Warning: The ATE servo motor must not be operated if the pump drive motor is stationary. For this purpose an interlock with motor protection of the pump main drive motor should be incorporated in the control circuit.



Commissioning

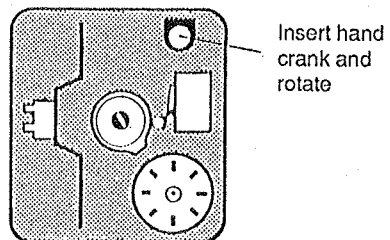
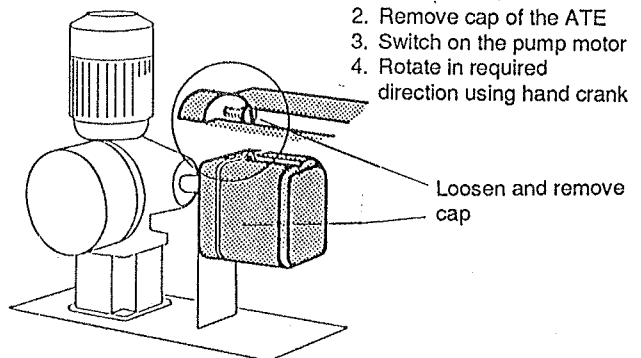
1. Connect up electrically as shown in the Circuit diagram above.
2. Give a few opening and closing pulses, and in so doing observe whether or not the motor rotates in the correct direction.

If the direction of rotation of the ATE drive is wrong, the leads must be transposed (terminals 2 and 3). Additional limit switches for testing by hand must be operated by lifting up the actuator lever from the control cam.

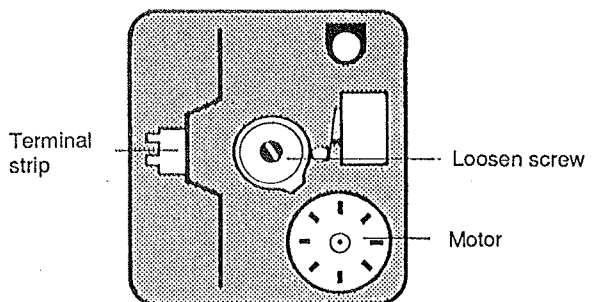
3. To test the limit switch adjustments for the drive, it must be moved, via electrical contacts, up to its limit positions at which the motor is switched off. Normally, the contacts are set before leaving the factory for the angle of rotation of 270° which corresponds to the stroke length from 0 to 100%. If necessary, the angle of rotation can be changed according to the sketch below.

Manual Adjustment (only for emergency use)

1. Switch off supply to the ATE unit.
2. Remove cap of the ATE
3. Switch on the pump motor
4. Rotate in required direction using hand crank



Insert hand crank and rotate



Terminal strip

Loosen screw

Motor

Maintenance

The actuating drive is adequately lubricated before leaving the works. However it is advisable to examine the drive once a year to ensure that it has sufficient lubricant, and, if necessary lubricate the gears again. In the case of drives that are constantly exposed to elevated temperatures, shorter intervals between examinations are recommended. No other maintenance is necessary.

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