Piston Dosing Pump FEDOS TK

MB 1 07 01/1

Introduction

FEDOS Piston Dosing Pumps can be supplied in the following forms:

Single Piston Dosing Pump type TK
Twin-headed Piston Dosing Pump type ZTK

Single or two dosing heads of different sizes and output capacities varying between 2 and 40 lts/hr can be fitted.

Advantages of a Piston Dosing Pump

- little dependency on back pressure
- linear dosage variation as a function of stroke length

The Dosing Pumps are therefore very suitable for high accuracy proportional dosing whre the length of stroke is varied by means of remote control signal.

Versions available

The single-head Dosing Pump can be supplied with the head on the left or right of the face of the dial, as required.

Left-hand version:
TK ... L Symbol Standard

Right-hand version:
TK ... R Symbol Standard

Twin-head Dosing Pumps have their dosing heads in parallel:
Parallel layout:
ZTK ... Symbol

Dosing Head

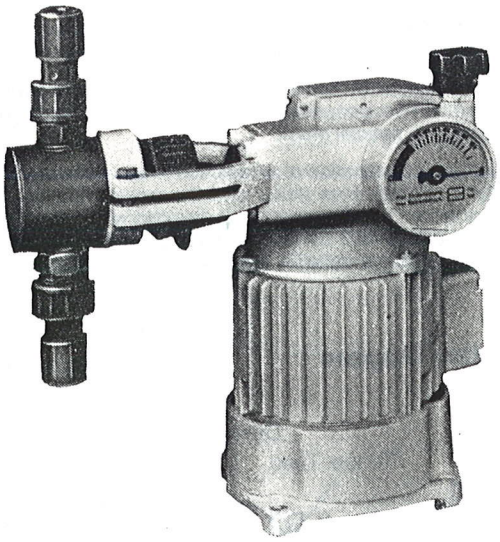
Dosing heads are supplied in plastic for max. 10 Bar pressure and in stainless steel for up to 40 Bar. Special materials available to order.

The correct choice of dosing head is based on consideration of the nature of the chemical being dosed, its temperature and viscosity, and on the system pressure. Environmental factors (harsh operating conditions, radiant heat, etc.) may also be important.

For duplex Dosing Pumps, the heads may be combined as required. If the head sizes are different, the larger one is always placed in front.

Valves

Suction and delivery valves can be supplied in the form of double-ball or spring-loaded single-ball valves. Spring-loaded valves are to be recommended if the chemical used has a viscosity of over 400mpas.



Piston Diaphragm Dosing Heads type KMS

Piston-diaphragm dosing heads can also be supplied. Their use is to be recommended where, with higher pressure, it is important that there should be no leaks, or where a toxic, aggressive or abrasive chemical is being used.

Piston-diaphragm dosing heads are isolated from the transmission lubricant, and have their own hydraulic system (glycerine filled intermediate chamber).

Important Note:

When a capacitor is fitted to the standard AC Drive Motor to convert to single phase operation (Steinmetz connection) the stated maximum pressures are reduced by approx. 30 %.

Technical Data

Pump	TK		2	5	10	20	30	40
max. Pressure	Polyethylene (PE)		10					
	Stainless Steel		40		30	25	19	16
At max. Pressure	litres/hour		2,4	5,5	9,8	19,8	30	36
	mls/stroke		0,45	1,0	1,8	3,6	5,5	6,6
Piston diameter	mm		6	9	12	17	21	23
Stroke	min		91					
Suction	mbar		150					
Drive P	kW		0,1					
Weight with	TK	kg	6,5					
PE Dosing Head	ZTK	kg	8.8					
Weight with	TK	kg	7,7					
SS Dosing Head	ZTK	kg	9,0					

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Piston Dosing Pump FEDOS TK

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Drive Unit

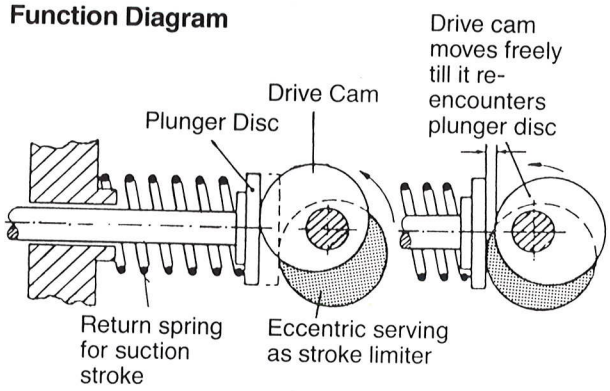
The Drive Unit consists of a Molykote-lubricated worm drive with a single stage stepdown mechanism. The stroke is created by means of a drive cam which moves up and down a spring-loaded plunger to which the piston is affixed. The dosing stroke is induced by the thrust of the drive cam, the suction stroke by the return spring. Length of stroke is determined by means of a plunger return stop, with a manually adjustable eccentric serving as a stroke limiter.

The length of stroke, by which the dosage is determined, can be adjusted manually whilst in operation on a linear scale of 0-100 %.

A manual adjustment facility is provided with the standard version. Electrical (ATE) or pneumatic (ATP) remote adjustment control can be supplied to special order.

Through the combination of an adjustable speed or on/off proportionally-controlled drive motor and the remote-controlled stroke length adjuster, the dosing pump is provided with two independent means of adjustment control so that, with automatic control systems, disturbance-variable feed-forward can be operated.

Function Diagram



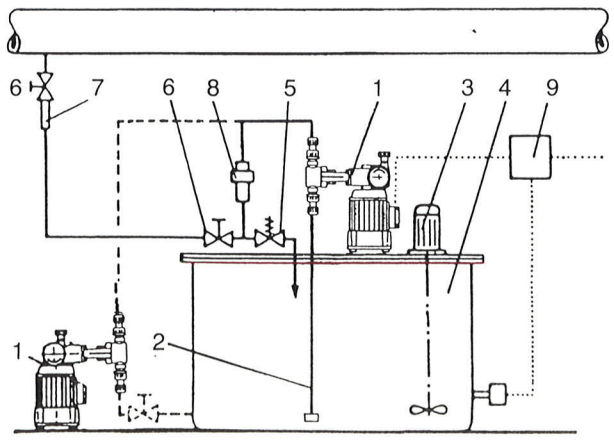
Piston packings can be supplied in the form of:

1. Teflon/silk packing and
2. Aramid packing

The Teflon/silk packing supplied as standard can be used with nearly all types of chemical.

Where abrasive agents are concerned it may be advisable to use Aramid-Keflar packing if the chemical employed allows. Aramid-Keflar is **not** resistant to concentrated acids or alkalis.

Typical Installation



Optional Components

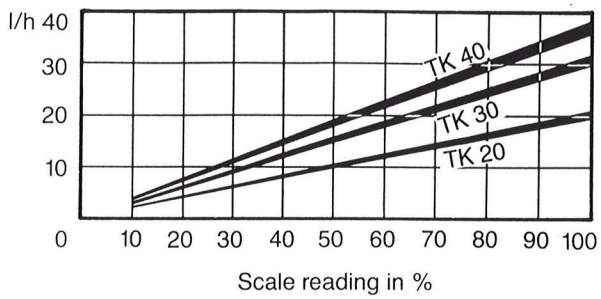
Stroke Counting
The Dosing Pump can be fitted on application with an inductive scanning for counting the number of strokes.

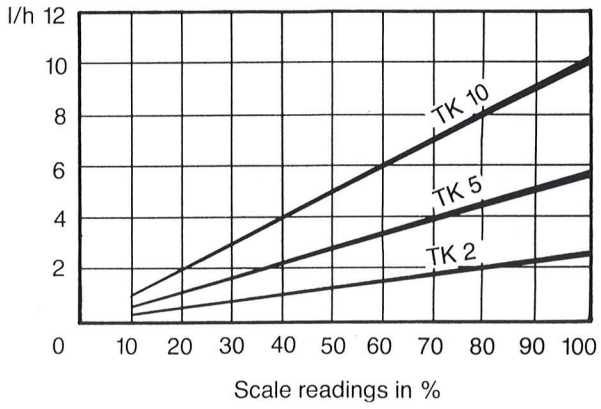
Proportional Dosing
This enables the dosage to be proportionally re-adjusted as a function, for example, of water meter contacts, where each contact serves to set in motion a pumping time that can be set at a fixed time of 1 to 30 seconds. (See Data Sheet MB 1 34 01).

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 07 01/5.

Output Curves

Top line = no discharge back pressure
Bottom line = max. discharge pressure





Legend

1.	Dosing Pump Fedos TK	MB 1 07 01
2.	Suction Pipeline	MB 1 22 01
3.	Motor Mixer	MB 1 36 01
4.	Solution Tank	MB 1 20 01
5.	Relief Valve	MB 1 25 01
6.	Isolating Valve	MB 1 24 01
7.	Injection Valve/Fitting	MB 1 23 01
8.	Pulsation Damper	MB 1 27 01
9.	Control Box (e.g: Motor Starter)	

Piston Dosing Pump FEDOS TK

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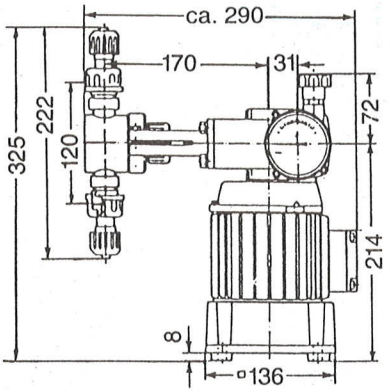
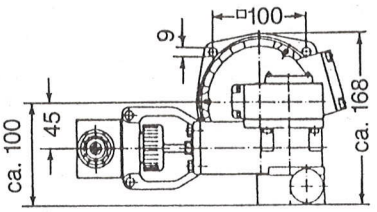
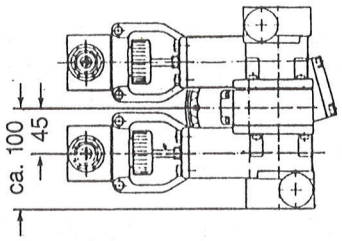
Dimensioned Drawings



TK



ZTK

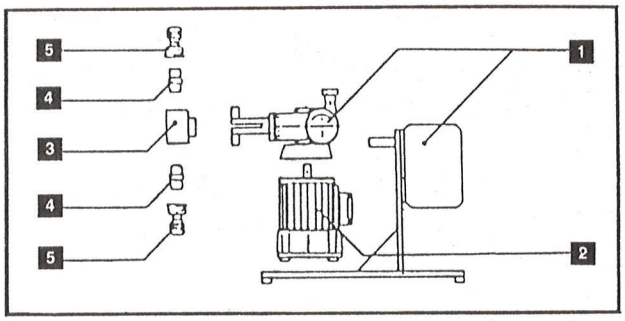


Selection Tables

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 Gearbox
2 Motor
3 Dosing Head
4 Valves
5 Connections



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

1

Pump type	Single-head TK		Twin-head ZTK	
	man.	ATE	man.	ATE
TK 2-40	23.296	23.309	27.531	27.535
TK 2-40 f. KMS	27.568	27.569	—	—

2

Pump type	Standard-Motor 220/380 V 50 Hz IP54 ISO Kl. B				
	Type	p [kW]	n [1u/min]	Rated current [A]	Part No.
TK 2-40	63 RFT 0.12/4-71 R	0,1	1420	0,44/0,76	23.275

3

Packing Material	PTFE-Silk			Piston-Diaphragm-Dosing Head KMS
Dosing Head Material	Plastic		SS	
Pump type \ Piston Material	Hastelloy	Ceramic	SS	
2	23.321	—	23.313	see MB 1 40 01
5	—	23.327	23.316	
10	—	23.328	23.317	
20	—	29.534	23.318	
30	—	29.535	23.319	
40	—	29.536	23.320	

other materials on request

Piston Dosing Pump FEDOS TK

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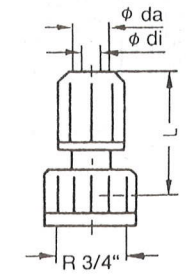
4

Material		Viton		Hypalon		Klingerit
		uPVC	SS	uPVC	SS	SS
Double-ball Valve	Suction	18.185	19.176	18.187	24.035	26.967
	Discharge	18.186	19.177	18.188	24.036	26.968
Spring-loaded Valve	Suction	25.162	23.408	25.161	25.163	28.775
	Discharge	27.517	23.409	27.516	25.164	28.776

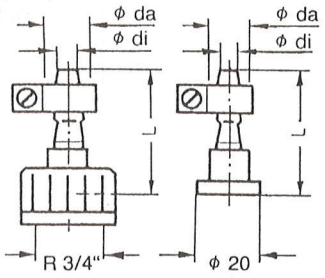
5

Abb.	DN	di	da	L	uPVC	SS
A	4	4	6	35	19.480	—
A	6	6	12	55	19.175	—
B	6	6	12	30	23.342	—
B1	6	6	12	30	—	23.426
C	6	6	10	15	25.167	—
C	8	10	12	15	27.518	—
C	10	10	16	17	25.625	—
D	10	10	R 1/4"	20	25.165	—
D1	6	—	R 1/4"	20	—	82.105
E1	6	6	8	25	—	27.519
	8	—	10	50	—	23.427
	10	—	12	50	—	23.428



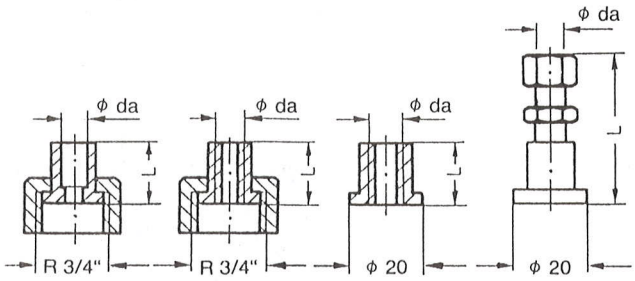
A

Locknut »clamp' connection for flexible tube



B B1

Hose clip connection for flexible tube



C D D1 E1

Solvent-cement 'plain' bush for uPVC rigid tube

Threaded pipe connection BSP or NPT as specified

Compression connection (e.g: 'Ermeto')

Example Order

The requirement is for 18 litres/hr of Aluminium Sulphate to be dosed, against a pressure of 14 bar. The Dosing Head should be in the standard version, on the left. Drive via 380 V 3 PH motor. The injection point is 45 metres away from the Dosing Pump.

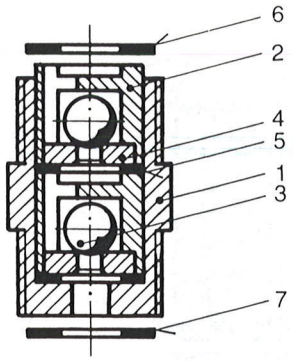
Because of the long distance between the Dosing Pump and the injection point, without a Pulsation Damper acceleration pressure peaks would occur which would be harmful not only to the Dosing Pump but also to the piping system and the dosing process. The installation of the PDS 80 Pulsation Damper is accordingly to be recommended (for details see Data Sheet MB 1 27 01).

Definition of the Pump

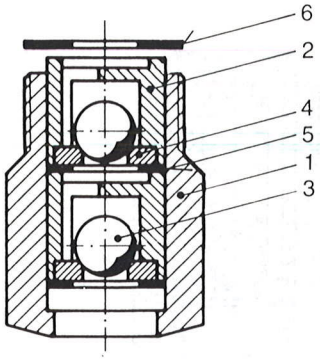
The requirements stated can be met with the standard piston Dosing Pump type FEDOS TK 20. A stainless steel Dosing Head will need to be selected owing to the high pressure. Packing materials to be used can be moderately priced materials in the Hypalon series.

Piston Dosing Pump FEDOS TK

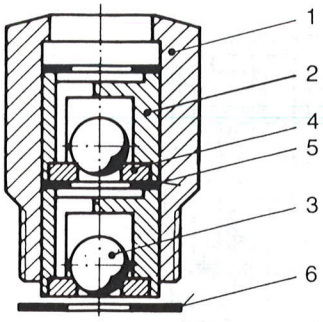
Twin Ball Valves ET 1 07 01/1



Suction and Discharge Valve
uPVC Version



Suction Valve



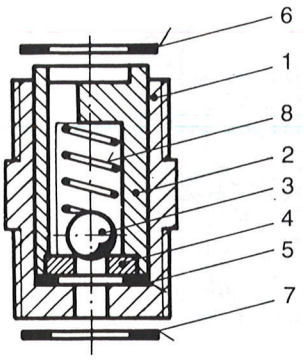
Discharge Valve

Stainless Steel Version

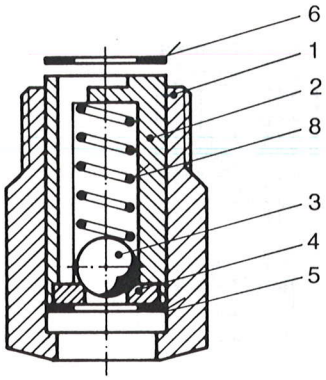
Item No.	Description	Part No.	Material	Suction Valve					Discharge Valve				
				uPVC		ss			uPVC		ss		
				Packing Material H = Hypalon V = Viton K = Klingerit									
				H	V	H	V	K	H	V	H	V	K
				Valve complete									
				18.187	18.185	24.035	19.176	26.967	18.188	18.186	24.036	19.177	26.968
1	Valve Housing	19.601	ss	—	—	1	1	1	—	—	1	1	1
		18.189	uPVC	1	1	—	—	—	1	1	—	—	—
2	Ball Guide	82.102	1.4581	—	—	2	2	2	—	—	2	2	2
		82.405	uPVC	2	2	—	—	—	2	2	—	—	—
3	Valve Ball	10.136	ss	—	—	2	2	2	—	—	2	2	2
		10.017	Ceramic	2	2	—	—	—	2	2	—	—	—
4	Valve Seating	24.038	ss	—	—	2	2	2	—	—	2	2	2
		82.406	uPVC	2	2	—	—	—	2	2	—	—	—
5	Flat Packing	81.138	Viton	—	2	—	2	—	—	2	—	2	—
		81.037	Hypalon	2	—	2	—	—	2	—	2	—	—
		81.522	Klingerit	—	—	—	—	2	—	—	—	—	2
6	Flat Packing	81.033	Hypalon	1	—	1	—	—	—	—	1	—	—
		81.285	Viton	—	1	—	1	—	—	—	—	1	—
		81.041	Hypalon	—	—	—	—	—	—	1	—	—	—
		81.141	Viton	—	—	—	—	—	—	1	—	—	—
		81.560	Klingerit	—	—	—	—	1	—	—	—	—	1
7	Flat Packing	81.033	Hypalon	—	—	—	—	—	1	—	—	—	—
		81.285	Viton	—	—	—	—	—	—	1	—	—	—
		81.041	Hypalon	1	—	—	—	—	—	—	—	—	—
		81.141	Viton	—	1	—	—	—	—	—	—	—	—

Piston Dosing Pump FEDOS TK

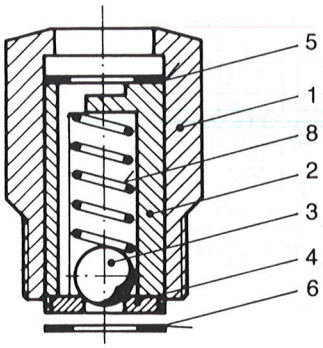
ET 1 07 01/2 Spring-loaded Valves



Suction and Discharge Valve
uPVC Version



Suction Valve



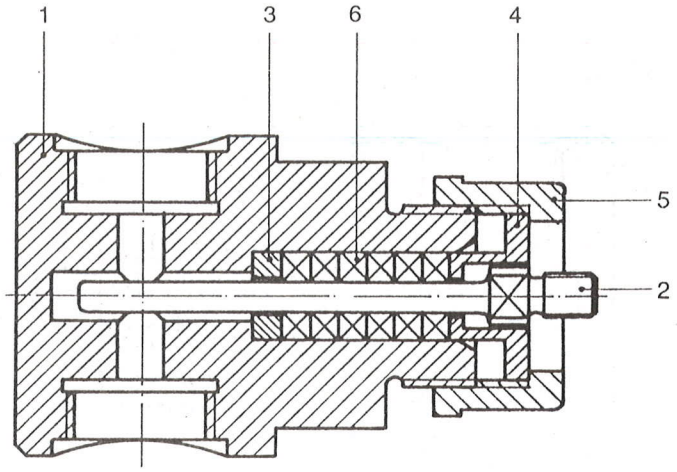
Discharge Valve

Stainless Steel Version

Item No.	Description	Part No.	Material	Suction Valve					Discharge Valve				
				uPVC		SS			uPVC		SS		
				Packin Material H = Hypalon V = Viton K = Klingerit									
				H	V	H	V	K	H	V	H	V	K
				Valve complete									
				25.161	25.162	25.163	23.408	28.775	27.516	27.517	25.164	23.409	28.776
1	Valve Housing	19.601	SS	—	—	1	1	1	—	1	1	1	
		18.189	uPVC	1	1	—	—	—	1	1	—	—	—
2	Ball Guide	23.412	uPVC	1	1	—	—	—	1	1	—	—	—
		25.169	SS	—	—	1	1	1	—	—	1	1	1
3	Valve Ball	10.136	SS	—	—	1	1	1	—	—	1	1	1
		10.017	Ceramic	1	1	—	—	—	1	1	—	—	—
4	Valve Seating	24.038	SS	—	—	1	1	1	—	—	1	1	1
		82.406	uPVC	1	1	—	—	—	1	1	—	—	—
5	Flat Packing	81.138	Viton	—	1	—	1	—	—	1	—	1	—
		81.037	Hypalon	1	—	1	—	—	1	—	1	—	—
		81.552	Klingerit	—	—	—	—	1	—	—	—	—	1
6	Flat Packing	81.033	Hypalon	1	—	1	—	—	—	—	1	—	—
		81.285	Viton	—	1	—	1	—	—	—	—	1	—
		81.041	Hypalon	—	—	—	—	—	1	—	—	—	—
		81.141	Viton	—	—	—	—	—	—	1	—	—	—
		81.560	Klingerit	—	—	—	—	1	—	—	—	—	1
7	Flat Packing	81.033	Hypalon	—	—	—	—	—	1	—	—	—	—
		81.285	Viton	—	—	—	—	—	—	1	—	—	—
		81.041	Hypalon	1	—	—	—	—	—	—	—	—	
		81.141	Viton	—	1	—	—	—	—	—	—	—	—
8	Valve Spring	25.082	Hastelloy	1	1	1	1	1	1	1	1	1	1

Piston Dosing Pump FEDOS TK

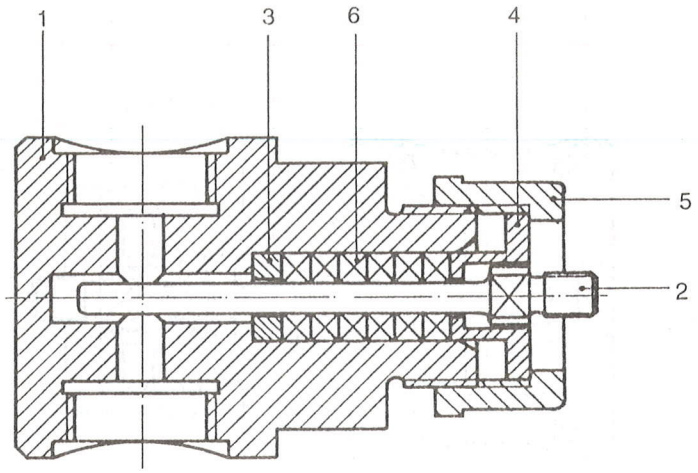
Plastic Dosing Head ET 1 07 01/3



Pos.	Description	Material	Pump type Part-No.	TK 2	TK 5	TK 10	TK 20	TK 30	TK 40
				Dosing Head complete					
				23.321	23.327	23.328	29.534	29.535	29.536
1	Piston Housing	PE	18.218	1	—	—	—	—	—
		PE	18.213	—	1	—	—	—	—
		PE	18.219	—	—	1	—	—	—
		PE	18.220	—	—	—	1	—	—
		PE	18.221	—	—	—	—	1	—
		PE	18.222	—	—	—	—	—	1
2	Piston	Hastelloy	18.225	1	—	—	—	—	—
		Ceramic/Ms	18.214	—	1	—	—	—	—
		Ceramic/Ms	10.272	—	—	1	—	—	—
		Ceramic/Ms	10.273	—	—	—	1	—	—
		Ceramic/Ms	10.274	—	—	—	—	1	—
		Ceramic/Ms	10.275	—	—	—	—	—	1
3	Support Ring	u PVC	10.665	1	—	—	—	—	—
		u PVC	18.217	—	1	—	—	—	—
		u PVC	10.685	—	—	1	—	—	—
		u PVC	10.695	—	—	—	1	—	—
		u PVC	10.705	—	—	—	—	1	—
		u PVC	10.715	—	—	—	—	—	1
4	Gland	u PVC	18.206	1	1	—	—	—	—
		u PVC	18.208	—	—	1	—	—	—
		u PVC	18.209	—	—	—	1	—	—
		u PVC	18.210	—	—	—	—	1	—
		u PVC	18.211	—	—	—	—	—	1
5	Screwed Cap	u PVC	10.068	1	1	1	—	—	—
		u PVC	82.213	—	—	—	1	1	1
6	Packing Ring	PTFE Silk Packing	81.014	6	—	—	—	—	—
		PTEF Silk Packing	81.257	—	6	—	—	—	—
		PTFE Silk Packing	81.023	—	—	6	—	—	—
		PTFE Silk Packing	81.025	—	—	—	6	—	—
		PTFE Silk Packing	81.026	—	—	—	—	6	—
		PTFE Silk Packing	81.027	—	—	—	—	—	6

Piston Dosing Pump FEDOS TK

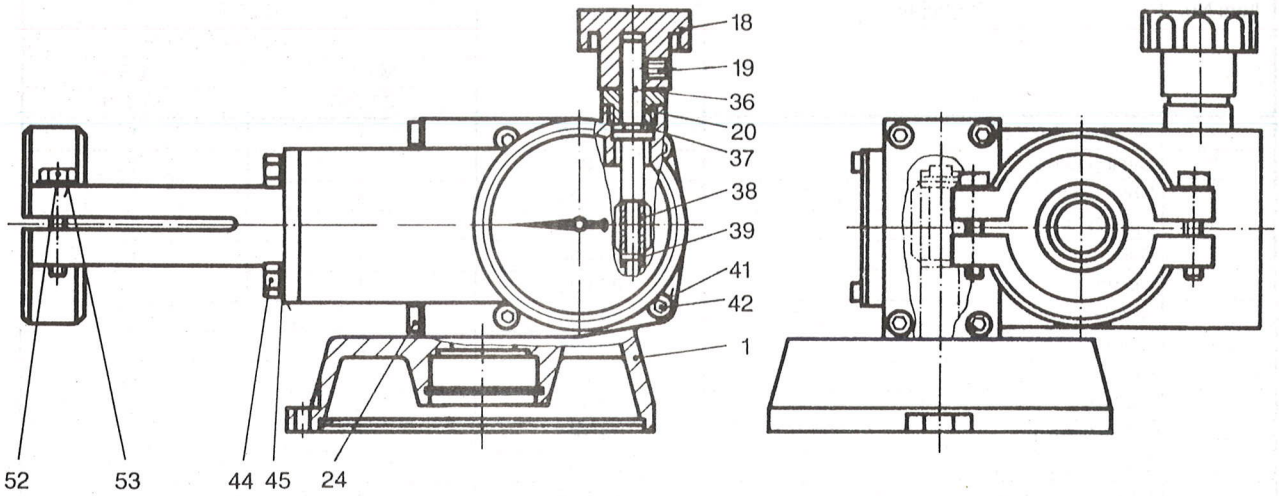
ET 1 07 01/4 Stainless Steel Dosing Head

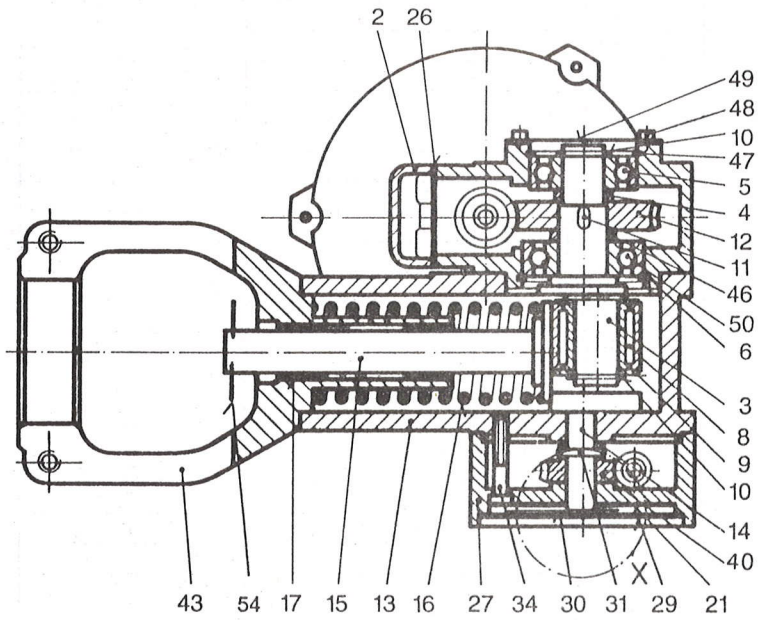


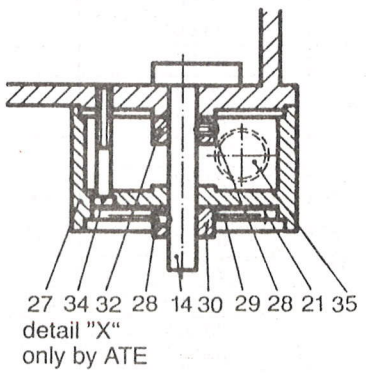
Pos.	Description	Marerial	Pump type Part-No.	TK 2	TK 5	TK 10	TK 20	TK 30	TK 40
				Dosing Head complete					
				23.313	23.316	23.317	23.318	23.319	23.320
1	Piston Housing	1.4571	10.607	1	—	—	—	—	—
		1.4571	10.619	—	1	—	—	—	—
		1.4571	10.627	—	—	1	—	—	—
		1.4571	10.637	—	—	—	1	—	—
		1.4571	10.647	—	—	—	—	1	—
		1.4571	10.657	—	—	—	—	—	1
2	Piston	1.4571	10.602	1	—	—	—	—	—
		1.4571	10.616	—	1	—	—	—	—
		1.4571	10.622	—	—	1	—	—	—
		1.4571	10.632	—	—	—	1	—	—
		1.4571	10.642	—	—	—	—	1	—
		1.4571	10.652	—	—	—	—	—	1
3	Support Ring	1.4571	10.605	1	—	—	—	—	—
		1.4571	10.609	—	1	—	—	—	—
		1.4571	10.625	—	—	1	—	—	—
		1.4571	10.635	—	—	—	1	—	—
		1.4571	10.645	—	—	—	—	1	—
		1.4571	10.655	—	—	—	—	—	1
4	Gland	1.4571	18.237	1	—	—	—	—	—
		1.4571	18.238	—	1	—	—	—	—
		1.4571	18.239	—	—	1	—	—	—
		1.4571	18.240	—	—	—	1	—	—
		1.4571	18.241	—	—	—	—	1	—
		1.4571	18.242	—	—	—	—	—	1
5	Screwed Cap	1.4571	18.129	1	1	1	—	—	—
		1.4571	18.130	—	—	—	1	1	1
6	Packing Ring	PTFE-Silk-Packing	81.014	6	—	—	—	—	—
		PTFE-Silk-Packing	81.257	—	6	—	—	—	—
		PTFE-Silk-Packing	81.023	—	—	6	—	—	—
		PTFE-Silk-Packing	81.025	—	—	—	6	—	—
		PTFE-Silk-Packing	81.026	—	—	—	—	6	—
		PTFE-Silk-Packing	81.027	—	—	—	—	—	6

Piston Dosing Pump FEDOS TK

Simplex Drive ET 1 07 01/5







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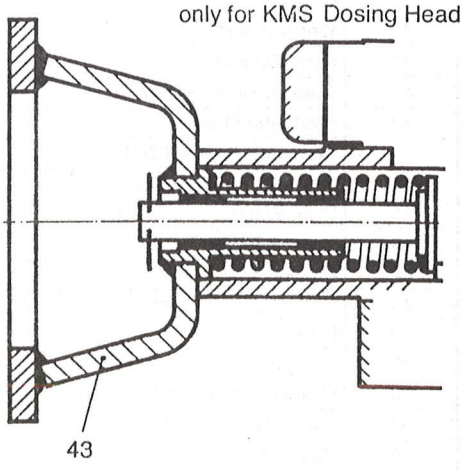


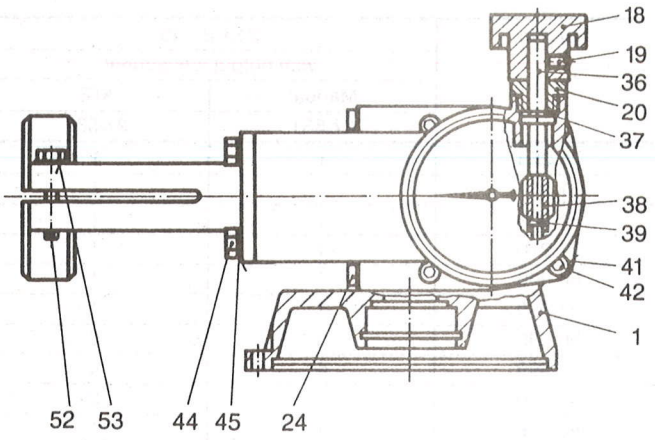
Piston Dosing Pump FEDOS TK

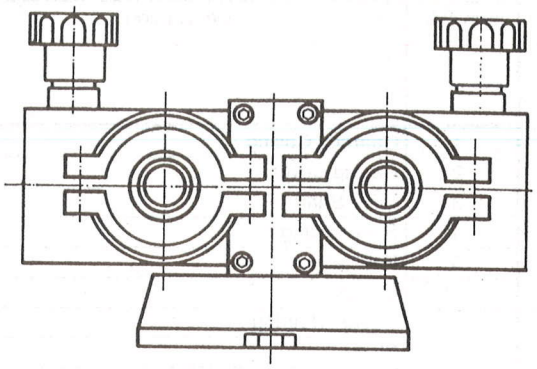
ET 1 07 01/6 Simplex Drive

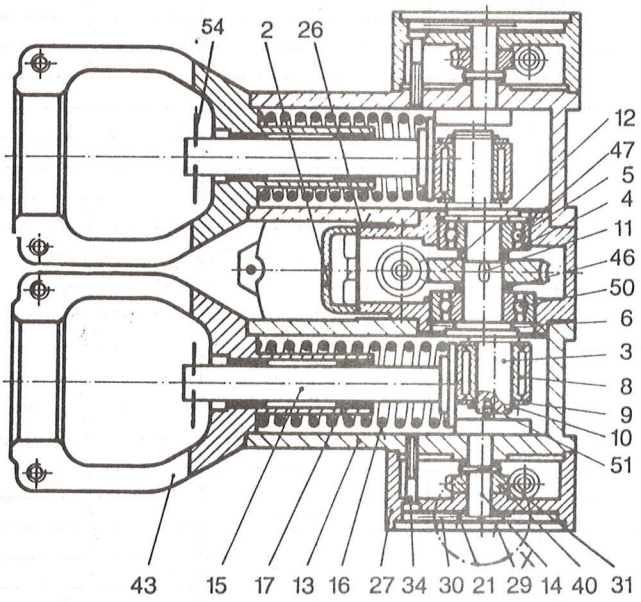
Item No.	Description	Part No.	TK 2 - 40 with output adjustment	
			Manual	ATE
			23.296	23.309
1	Gearbox Casing	21.252	1	1
2	Casing Cover	21.211	1	1
3	Drive Shaft	21.255	1	1
4	Spacer Ring	21.210	1	1
5	Ball-race	86.006	1	1
6	Circlip	84.090	1	1
8	Needle Bearing	86.098	1	1
9	Shim	86.099	2	2
10	Circlip	84.010	2	2
11	Feather	83.406	1	1
12	Worm Wheel	18.160	1	1
13	Eccentric Casing	21.291	1	1
14	Variable Eccentric	21.290	1	—
	Variable Eccentric	21.646	—	1
15	Piston Rod	18.157	1	1
16	Compression Spring	18.177	1	1
17	Bush	19.377	2	2
18	Adjusting Knob	18.020	1	—
19	Threaded Pin	83.105	1	—
20	Guide Sleeve	18.011	1	—
21	Scale	87.205	1	—
	Scale	87.366	—	1
24	Cheese Head Screw	83.048	4	4
26	Flat Packing	21.270	1	1
27	Scale Housing	18.008	1	1
29	Cover Plate	87.202	1	—
	Cover Plate	87.239	—	1
30	Pointer	83.464	—	1
	Pointer	87.020	1	—
31	Clamping Sleeve	83.103	1	—
32	Adjusting Ring	83.449	—	1
34	Cheese Head Screw	83.448	3	3
35	Closure Plug	18.134	—	1
36	Adjusting Spindle	18.010	1	—
37	Spring Washer	83.407	1	—
38	Worm Shaft	18.017	1	—
39	Dowel Pin	83.283	1	—
40	Worm Wheel	18.016	1	—
41	Plain Washer	84.000	4	4
42	Cheese Head Screw	83.001	4	4
43	Clamping Flange	21.271	1	1
	Clamping Flange KMS	26.354	1	1
44	Hexagon Head Screw	83.021	4	4
45	Plain Washer	84.021	4	4
46	Spacer Ring	21.272	1	1
47	Circlip	84.012	1	1
48	Cheese Head Screw	83.026	4	4
49	Cap	21.266	1	1
50	Ball Race	86.064	1	1
52	Hexagon Head Screw	83.022	2	2
53	Plain Washer	84.021	2	2
54	Washer	81.269	1	1

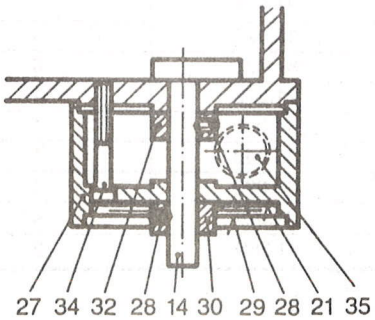
Piston Dosing Pump FEDOS TK

Duplex Drive ET 1 07 01/7









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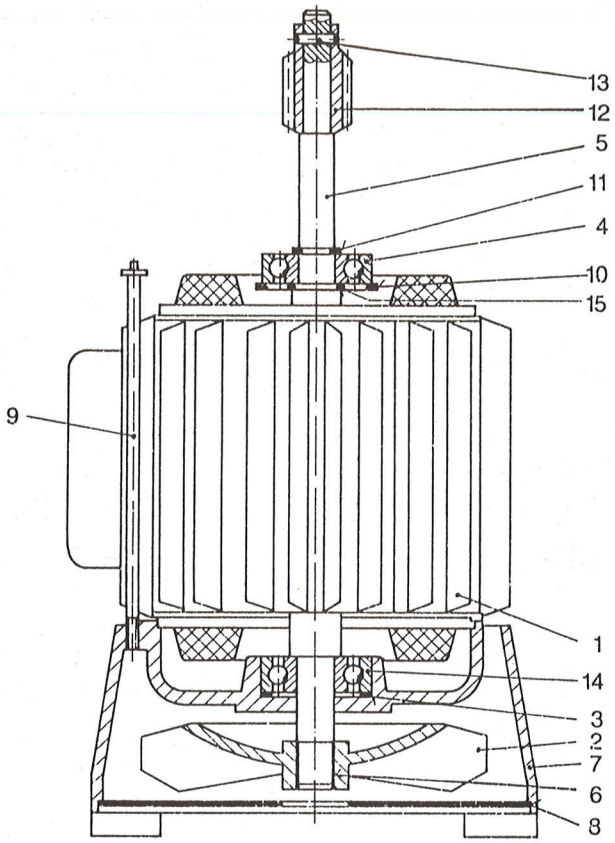
Piston Dosing Pump FEDOS TK

ET 1 07 01/8 Duplex Drive

Item No.	Description	Part No.	ZTK 2 - 40 with output adjustment	
			Manual	ATE
			27.531	27.532
1	Gearbox Casing	21.268	1	1
2	Casing Cover	21.211	1	1
3	Drive Shaft	21.269	1	1
4	Spacer Ring	21.210	1	1
5	Ball-race	86.006	1	1
6	Circlip	84.090	1	1
8	Needle Bearing	60.098	2	2
9	Shim	86.099	4	4
10	Circlip	84.010	2	2
11	Feather	83.406	1	1
12	Worm Wheel	18.160	1	1
13	Eccentric Casing	21.291	2	2
14	Variable Eccentric	21.290	2	—
	Variable Eccentric	21.646	—	2
15	Piston Rod	18.157	2	2
16	Compression Spring	18.177	2	2
17	Bush	19.377	4	4
18	Adjusting Knob	18.020	2	—
19	Threaded Pin	83.105	2	—
20	Guide Sleeve	18.011	2	—
21	Scale	87.205	2	—
	Scale	87.366	—	2
24	Cheese Head Screw	83.048	4	4
26	Flat Packing	21.270	1	1
27	Scale Housing	18.008	2	2
29	Cover Plate	87.202	2	—
	Cover Plate	87.239	—	2
30	Pointer	87.020	2	—
	Pointer	83.464	—	2
31	Clamping Sleeve	83.103	2	—
32	Adjusting Ring	83.449	—	2
	Cheese Head Screw	83.448	6	6
35	Closure Plug	18.134	—	2
36	Adjusting Spindle	18.010	2	—
37	Spring Washer	83.407	2	—
38	Worm Shaft	18.017	2	—
39	Dowel Pin	83.283	2	—
40	Worm Wheel	18.016	2	—
41	Plain Washer	84.000	8	8
42	Cheese Head Screw	83.001	8	8
43	Clamping Flange	21.271	2	2
44	Hexagon Head Screw	83.021	8	8
45	Plain Washer	84.021	8	8
46	Spacer Ring	21.272	1	1
47	Circlip	84.012	1	1
50	Ball Race	86.064	1	1
52	Hexagon Head Screw	83.022	4	4
53	Plain Washer	84.021	4	4
54	Washer	81.269	2	2

Piston Dosing Pump FEDOS TK

Parts-Motor ET 1 07 01/9



Item No.	Description	Part No.	No. off
1	Stator	21.261	1
2	Pump Base	21.251	1
3	Ball Race Shim	84.142	2
4	Ball Race	68.006	1
5	Rotor	21.260	1
6	Fan Wheel Securing Device	21.263	1
7	Fan Wheel	21.262	1
8	Baseplate	21.257	1
9	Pull Rod	21.264	3
10	Circlip	84.012	1
11	Circlip	84.010	1
12	Worm	11.376	1
13	Dowel Pin	83.414	1
14	Ball Race	86.015	1
15	Shim	84.138	1

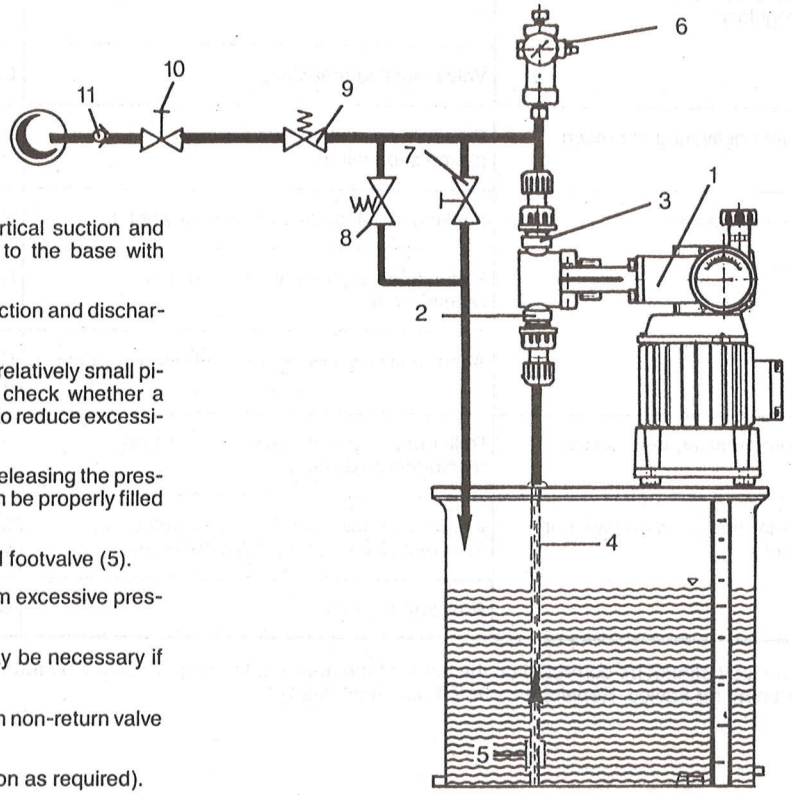
Motor complete: 23.275

Piston Dosing Pump FEDOS TK

Operating & Maintenance Instructions BW 1 07 01/1

Technical Data

Pump	TK		2	5	10	20	30	40
max. Pressure	Polyethylene (PE)		10					
(bar)	Stainless Steel		40		30	25	19	16
At max. Pressure	litres/hour		2,4	5,5	9,8	19,8	30	36
	mls/stroke		0,45	1,0	1,8	3,6	5,5	6,6
Piston diameter	mm		6	9	12	17	21	23
Stroke	min		91					
Suction	mbar		150					
Drive P	kW		0,1					
Weight with	TK	kg	6,5					
PE Dosing Head	ZTK	kg	8.8					
Weight with	TK	kg	7,7					
SS Dosing Head	ZTK	kg	9,0					



Installation

1. Set up the Dosing Pump (1) only with vertical suction and discharge valves (2 + 3), and rigidly fix to the base with screws.
2. The pipework must exert no force on the suction and discharge valves.
3. With lengths of piping exceeding 10 M and relatively small pipeline diameters and/or high viscosities, check whether a Pulsation Damper (6) is necessary in order to reduce excessive pulsations.
4. If a Pulsation Damper is used, valve (7) for releasing the pressure should be fitted so that the Damper can be properly filled with air.
5. Fit suction line (4) with suction strainer and footvalve (5).
6. Relief Valve (8) protects the installation from excessive pressure.
7. Pressure retaining (»loading') valve (9) may be necessary if there is a possibility of syphoning.
8. Provide an injection point assembly (11) with non-return valve if dosing is into a pressurised system.
9. Fix the motor in position (direction of rotation as required).
10. Fit a motor protection switch (overload relay) according to the data supplied for the motor.

Commissioning

1. Switch on the Dosing Pump motor.
2. Set the Dosing Pump to max. dosing rate and drive up to speed without back pressure.
3. If the Dosing Pump itself is not sucking, unscrew the discharge valve and fill the dosing head with liquid. Screw the discharge valve on again and restart the pump.
4. When the dosing rate has settled, set to the rate required.

Maintenance

Teh FEDOS TK Dosing Pump requires virtually no maintenance. The gearing system is lubricated with molybdenum disulphide for long operating periods but it is advisable, with continuous operation of the pump, to renew the grease after 5000 hours.

Attention! Do not use oil.
The motor bearings must not be re-lubricated.

Legend

1.	Piston-type Dosing Pump Fedos TK	MB 1 07 01
2.	Suction Valve	MB 1 07 01
3.	Discharge Valve	MB 1 07 01
4.	Suction Line	MB 1 22 01
5.	Footvalve	MB 1 22 01
6.	Pulsation Damper	MB 1 27 01
7.	Diaphragm Isolating Valve	MB 1 24 01
8.	Relief Valve	MB 1 25 01
9.	Pressure Retaining Valve	MB 1 25 01
10.	Diaphragm Isolating Valve	MB 1 24 01
11.	Injection Point	MB 1 23 01

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.
	Suction filter, footvalve or suction pipe leaking or blocked	Clean and seal suction pipe.
	No lifting movement present	Return spring broken. Replace spring. Pay attention to density of medium! Lift too great.
Pump delivers too little or irregulary	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.
Piston leakage	Packing is not clamped sufficiently tightly	Re-tighten about half a turn by sense of feel.
	Piston has longitudinal scores due to normal wear	Renew piston and packing
	Abnormally high wear due to abrasive medium	Replace PTFE packing by aryl amide (Aramide) packing.
Pump making loud noises	Roller bearings 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 for advice. Repairs are carried out immediately.