

OPERATING MANUAL

DOSINOX Diaphragm Pump

E2-16	16 - 160 l / h
E2-25	25 – 250/380 l / h
E2-40	40 - 400 l / h
E2-50	50 - 500 l / h

Serial No.:

SNH xxx

Document revision:

Revision:	Date:	Author:	Change:	Release
00	09.01.2017	EP/Tk	New creation	EP/Bm

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1 MANUFACTURER'S DETAILS

1.1 Bucher Unipektin AG

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1.2 Contact person in your country

You can find the contact person for your country on the cover sheet of this operating manual.

1.3 Copyright

© COPYRIGHT held by Bucher Unipektin AG.

The contents of this document may not be copied, in part or in whole, nor made accessible to third parties nor used for non-operational purposes without the express written consent of Bucher Unipektin AG.

2 TEST CERTIFICATES

All of our devices are manufactured according to the current state of the art and tested in-house.

The CE Declaration of Conformity is included in the appendix.

3 PRODUCT DESCRIPTION

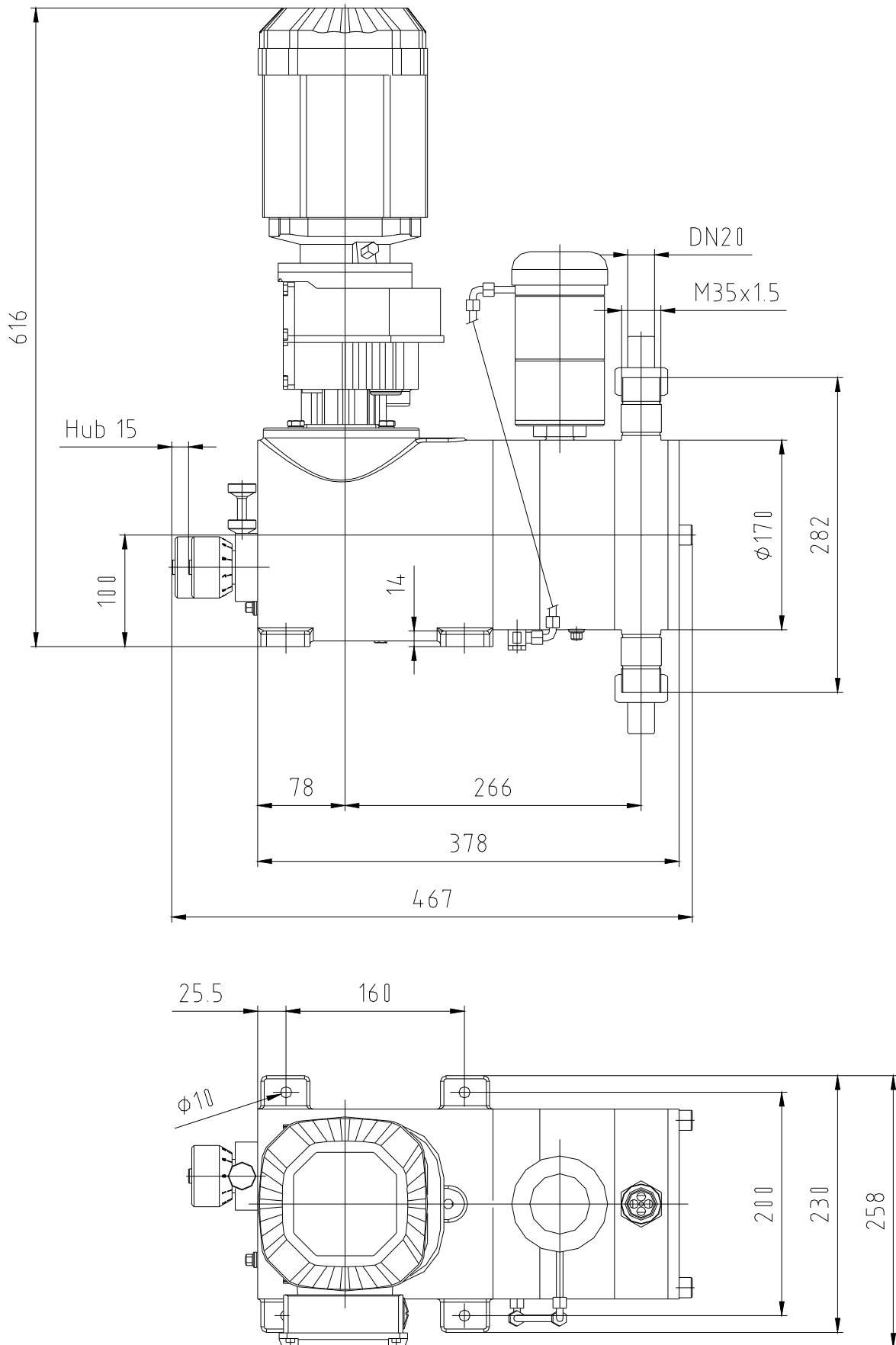
3.1 Technical data

Pump type	160 l / h	250 l / h	380 l / h	400 l / h	500 l / h
Discharge volume (continuous)	16-160 l/h	25-250 l/h	25-380 l/h	40-400 l/h	50-500 l/h
Maximum operating pressure	10 bar	10 bar	10 bar	10 bar	10 bar
Max. operating temperature (short term)	100 °C	100 °C	100 °C	100 °C	100 °C
Max. operating temperature (long term)	70 °C	70 °C	70 °C	70 °C	70 °C
Dosing accuracy	+/- 7,5 %	+/- 7,5 %	+/- 7,5 %	+/- 7,5 %	+/- 7,5 %
NW connection	20	20	20	20	20
Connector thread	M 35 x 1.5	M 35 x 1.5	M 35 x 1.5	M 35 x 1.5	M 35 x 1.5
Stroke length	15 mm	15 mm	15 mm	15 mm	15 mm
Weight	55 kg	55 kg	55 kg	55 kg	55 kg
Stroke rate	35 rpm	57 rpm	57 rpm	88 rpm	112 rpm

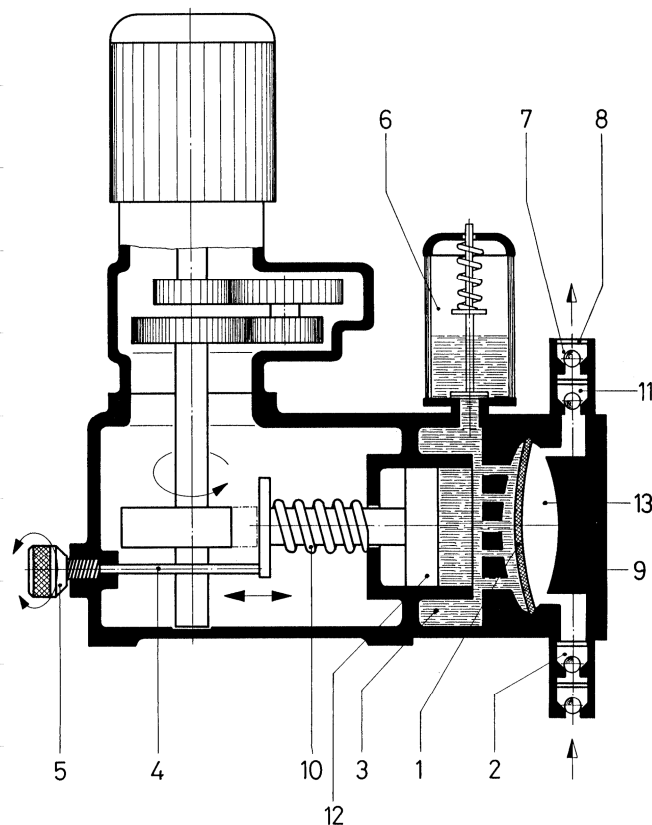
Materials (Standard finish)	
Pump head	316 L
Valves	316 L
Valve balls	Agate
Housing	Aluminium
Diaphragm	NBR

3.1.1 Dimensional drawings

All dimensions in mm



3.2 Description of equipment



The dosing pump works according to the principle of a piston diaphragm pump, in which the diaphragm (1) is actuated hydraulically. During the discharge stroke the piston forces the hydraulic fluid (3) against the diaphragm. The bulge this creates displaces the discharge medium through the pressure valve (11), while the suction valve (2) necessarily remains shut. The suction stroke is actuated by a recoil spring (10).

Throughout operation, the discharge volume is infinitely variable in the relevant range of the dosing pump. It is set by turning the spindle (4) with the vernier gauge (5). The wearing parts (7 + 8) of the suction and discharge valves (2 + 11) are very easy to replace.

The dosing liquid only comes into contact with the suction valve (2), the discharge valve (11), the dome unit (9), the pump head and the diaphragm (1). The condition of the diaphragm (1) can be quickly and easily checked by removing the dome unit (9), without having to drain off the hydraulic fluid. This check takes just a few moments. Any damage occurring can be quickly identified and the defective diaphragm replaced.

A special oil with FDA/USDA H1 approval is used as the hydraulic fluid.

The expansion tank (6) above the pump area (13) constantly regulates the correct level of hydraulic fluid in the pump area. Also, if the maximum permitted operating pressure in the dosing pump is exceeded, the expansion tank will absorb the displaced fluid and automatically feed it back to the pump chamber as soon as the pressure has dropped to the permitted level. This prevents damage to the pump.

3.3 Range of Application/Correct Usage

The Bucher Unipektin AG diaphragm pump is used for volumetric dosing of fluids (water, Kieselguhr and PVPP suspensions etc.).

Media other than Kieselguhr, PVPP, additives or water may only be metered using this pump once the manufacturer has given written approval.



4 SAFETY INSTRUCTIONS

4.1 General



- All of our machinery / equipment is manufactured according to the current state of the art and tested in-house. It is packaged to prevent damage during transport.
- If damage is nevertheless detected despite careful packing and precise checking, the shipper must be informed immediately unless otherwise contractually agreed. In this event, claims for compensation for damages can be submitted. The transport risk is transferred to the customer once the shipment has left our warehouse, unless otherwise contractually agreed.
- If the machinery / equipment is not immediately put to use, proper storage conditions must be assured.
- The machinery / equipment must be protected from cold, damp and dust, as well as mechanical influences.
- An appropriate expert is required to ensure correct assembly and maintenance.
- Our general terms of sale and delivery shall apply.



4.2 Labelling of instructions in the operating manual



Safety notices are structured as follows:

Signal value 	
	<p>Description of the danger. Potential consequences of the danger. → Actions to avoid the danger.</p>

The safety instructions in the operating manual that can indicate danger to human life or material damage if not observed are marked with these general danger symbols:

DANGER 	
	<p>Indicates an imminent danger. → If the information is not complied with, death or serious physical injury (disability) will result.</p>

WARNING 	
	<p>Indicates a potentially dangerous situation. → If the information is not complied with, death or serious physical injury (disability) may result.</p>

CAUTION 	
	<p>Indicates a potentially dangerous situation. → If the information is not complied with, material damage or minor to moderate physical injury may result.</p>

NOTICE

Indicates general instructions, useful operator tips and operating recommendations which have no effect on the health and safety of personnel.

- Highlights tips and recommendations and information for the efficient and trouble-free operation of the system.

4.3 Structural requirements

- The lighting should be arranged in such a way that easy recognition of activation and monitoring instructions is assured.

4.4 Personnel qualifications and training

The personnel used for **operation, maintenance, inspection and assembly** must be appropriately qualified for such work. The area of responsibility, **authority and monitoring of personnel must be precisely controlled by the operator**. If personnel do not have the necessary skills, they must be trained and instructed by Bucher Unipektin AG personnel or by personnel authorised by Bucher Unipektin AG. If necessary, this can be carried out by the manufacturer / supplier under contract to the operator of the machinery / equipment. It is essential that the contents of the operating manual are fully understood and implemented by the personnel.

4.5 Risks arising as a result of non-observance of the safety instructions

Non-observance of the safety instructions can lead to danger to persons, machinery / equipment or the product, as well as to the environment. Non-observance of the safety instructions will also result in loss of rights to claims for damages.

In specific cases, non-compliance may lead to the following risks, for example:

- Failure of important functions of the machinery / equipment.
- Failure of the prescribed repair and maintenance methods.
- Risks to personnel due to electrical, mechanical or chemical effects.
- Risks to persons or the environment due to the leakage of hazardous materials.

4.6 Safety-conscious operation

- The safety instructions contained in this operating manual, the existing national directives on accident prevention and the company's internal working, operating and safety regulations for operation must be observed.
- If the machinery / equipment is integrated into equipment provided by the customer or into a process to which national regulations apply, adherence to those regulations must be checked or a risk assessment must be carried out prior to commissioning the equipment.

4.7 Safety instructions for the operator/user

- Never bypass, modify or turn off the safety equipment.
- If hot or cold machines / equipment parts present a risk, these parts must be secured against contact.
- Equipment for protection against contact with parts that move during operation located on the machinery / equipment should not be removed.
- Leaks of hazardous materials being conveyed (e.g. explosive, toxic, hot materials) must be diverted in such a way that there is no risk to personnel or the environment. Legal requirements must be observed.
- Risks and hazards due to electrical power must be prevented. (For further information, please see the VDE regulations and information from local energy providers, for example.)
- Before opening the machinery / equipment, all supply and drainage lines must be securely shut off and ventilation and drainage lines must be open to ensure that the equipment is depressurised and empty.
- After maintenance or assembly work, and at the latest before bringing into operation, the equipment should be checked for leaks.
- All lines which may discharge fluids directly into the environment must be properly diverted for the protection of personnel.

4.8 Unauthorised alteration and manufacture of replacement parts

Modifications or changes to the machine / equipment are only permitted in consultation with the manufacturer. For safety reasons, only genuine spare parts and accessories approved by the manufacturer should be used. The use of other parts shall invalidate liability for any consequences, in particular for the entire system and its operation/function.

4.9 Inadmissible operation

- The supplied machinery / equipment will only operate reliably if used correctly in accordance with the following sections of the operating manual. The threshold values specified in the technical data must not be exceeded.
- Work on the machinery / equipment should always only be carried out when it is switched off, disconnected from the mains supply and empty. The procedure set out in the operating instructions for shutting down the machinery / equipment must be adhered to.
- Machinery / equipment that convey media harmful to health must be cleaned prior to opening.
- Directly after maintenance and repair work on the device, all safety and protection equipment must be re-attached or made functional.
- The machinery / equipment may only be operated in accordance with the process specifications of Bucher Unipektin AG as described in this operating manual or that have been specially created for you by our process technicians.

4.10 Filter aids, stabilising agents, additives

(such as: Kieselguhr, PVPP, NOVOCEL)

The safety instructions of the manufacturers of such products must be observed.

Furthermore, the process specifications and mixing ratios specified in this manual for these products must be observed.

4.11 Cleaning agents

(such as: acids, alkalis, disinfectants.)

The safety instructions of the manufacturers of such products must be observed.

Furthermore, the process specifications and application concentrations specified in this operating manual for such products must be observed.

4.12 Electricity



Electrical components should only be connected by experts.

Modifications to the control box should not be carried out without written authorisation.

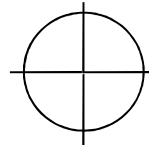
Wiring diagrams can be found in the electrical components manual.

5 TRANSPORT, STORAGE, ASSEMBLY

5.1 Transport

CAUTION 	
	<p>Crushing hazard due to loss of stability or falling objects. Improper handling can lead to crushing.</p> <ul style="list-style-type: none"> ➔ Please take note of the location of the centre of gravity of the machine ➔ Use authorised transport and lifting equipment

All of our machinery / equipment leaves our factory having been rigorously tested and properly packed to prevent damage during transport. Appropriate aids should be used to unload our machinery / equipment. The centre of gravity must be observed. If the centre of gravity is not located in the centre of the packaging, this will be indicated by the following symbol on the packaging:



5.2 Storage

If the machinery / equipment is not immediately put to use, proper storage conditions must be assured. The manufacturer is not liable for damage caused by incorrect storage or internal transport. The machinery / equipment must be protected from cold, heat, damp and dust, as well as mechanical influences.

5.3 Assembly instructions

The Bucher Unipektin AG diaphragm pump is supplied ready for use.

1.	Position the pump and attach with the 4 nuts.
2.	Attach the lines.
3.	Attach the electrical connections.
4.	Test run

6 SPECIFICATIONS FOR THE INSTALLATION SITE

6.1 Infrastructure list


Inlet and outlet pipes for the filtrate should have the same or a larger cross-sectional area as the inlet and outlet nozzles on the device where possible.

7 OPERATING MATERIALS

7.1 Dosing materials



- Kieselguhr
- PVPP
- Additives
- Stabilising agents



7.2 Lubricants

NOTICE		
	Useful tips and recommendations for users <ul style="list-style-type: none"> ➔ Different oils must not be mixed. When changing the oil type, the gear system must first be flushed with the new oil. ➔ We recommend checking the oil level in the drive housing. 	
Grease filling in gear motor	Grease type: Klübersynth	UH1 6-220
Grease filling in the upper bearing of the gear motor	Grease type: Klübersynth	UH1 14-151
Oil filling in the housing	Oil type: <ul style="list-style-type: none"> - Mobil DTE FM 220 - Klüberoil 4 UH1 220 - Food Lube ISO 220 	Oil volume 2.4 litres
Oil filling in the expansion tank	Oil type: <ul style="list-style-type: none"> - Klüberoil 4 UH1 68N - Klüberoil 4 UH1 68N - Food Lube ISO 68 	Oil volume 0.36 litres

NOTICE	
	EPDM gaskets should not come into contact with lubricants containing mineral oil. Lubricants containing mineral oil cause EPDM gaskets to swell up and fail. If the gasket malfunctions or swells up, additional components in the device may also be damaged. We recommend the use of a silicon-based lubricant such as Paraliq GTE 703 manufactured by KLÜBER.

7.3 Cleaning agents

CAUTION 	
	Danger when handling cleaning agents! <ul style="list-style-type: none"> ➔ When using acids, alkali solutions, disinfectants etc., the safety instructions from the suppliers of these products must be observed. ➔ Furthermore, the process specifications and usage concentrations specified in this manual for these products must be observed.

CAUTION 	
	Risk of burning from touching the pump after sterilisation! Risk of burning from touching after sterilisation. During sterilisation the device can reach a temperature of 82-95°C. <ul style="list-style-type: none"> ➔ Do not touch the device while it is still hot.



- Water
- Sterilised water 0.1 - 0.2% acid

8 INFORMATION ON USING THE DEVICE

8.1 Operating and monitoring unit

- Oil sight glass for monitoring the oil level.
- Scale head to set the dosing volume.
- Attachment screw so that the scale head is not misaligned.
- Safety valve so that the pressure is not exceeded.

8.2 Measures to be implemented before commissioning

CAUTION 	
	<p>Incomplete assembly can cause various hazards!</p> <ul style="list-style-type: none"> → The pipe work for our machines/devices must be connected and checked by a skilled person. → The rubber cap on the ventilation line on the pump housing must be removed. → The safety equipment must be installed and not bypassed, modified or disabled.

8.3 First commissioning

Intensive cleaning (such as CIP) is required before first use.


8.4 Prerequisites for optimum operation

Adherence to the following dosage description is required.

8.5 Mixing ratios

A mixing ratio of 1:5, for example, means that 1kg of filter aid is mixed with enough fluid to make a total mixture volume of 5 litres.

1 : 5 = 1kg of filter aid + fluid = 5 litres of mixture

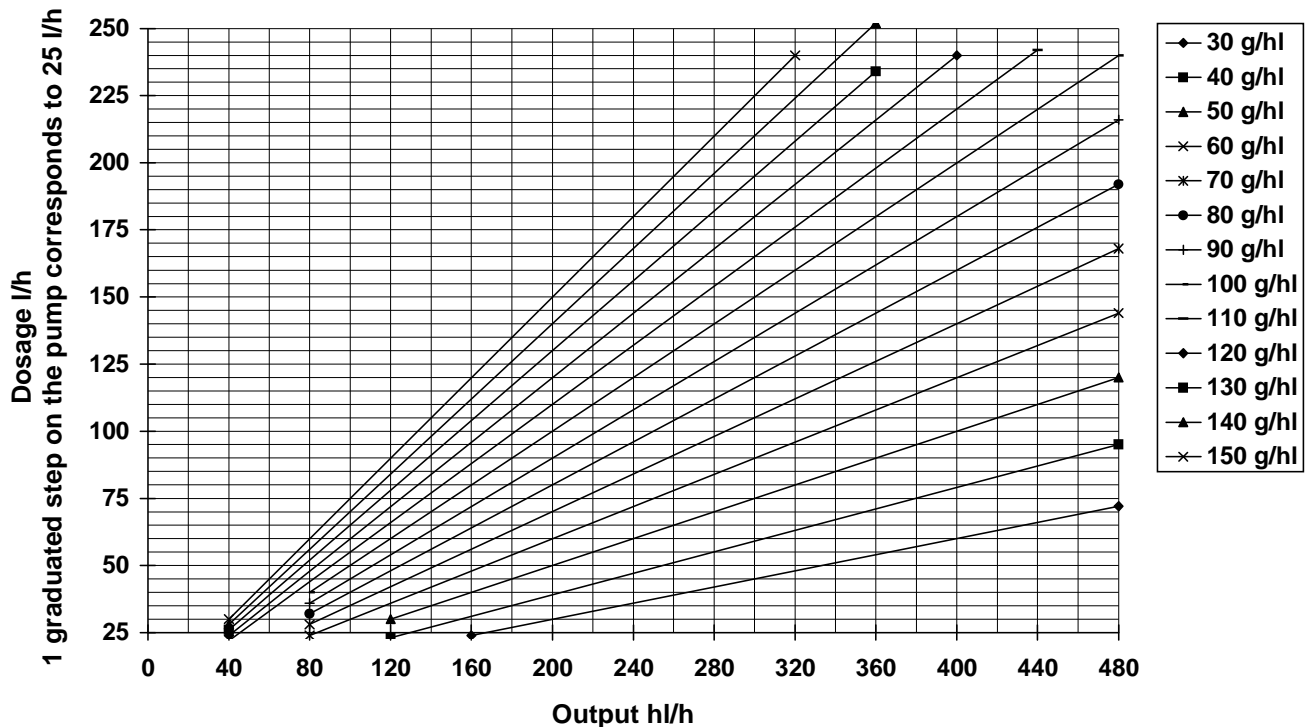
NOTICE	
	<p>Useful tips and recommendations for users</p> <ul style="list-style-type: none"> → The mixing ratio can be adjusted according to requirements and use of the dosing pump. → Dosing diagrams for mixtures are enclosed.

8.6 Continuous dosing

Continuous dosing is always performed with the dosing pump.

<u>Example:</u>	Filter output	320 hl/h
	Continuous dosing	60 g / hl
	Mixing ratio	1 : 5

Dosage diagram 250l/h Mixing ratio 1:5



On the mixing diagram you will see that the dosing volume from the above data = 95 l/h. You can see how to set the dosing volume in the next section "Setting the dosing pump".

Try to filter as sparingly as possible following the principle:

AS MUCH AS NECESSARY, AS LITTLE AS POSSIBLE!

Follow the dosing diagrams in the appendix.

Start dosing just before the fluid to be filtered flows through the main line of the dosing unit to the filter. By doing so you will prevent draff getting into the filter without having to add additional filter aids at the same time. If the Kieselguhr suspension needs to be replenished during filtration, it helps if you fill the tank with water first, then switch off the agitator and pump for a short time, add the volume of Kieselguhr and immediately agitate again.

8.7 Setting the dosing pump

For item numbers, see diagram 1-1711 under Spare Parts

The setting range (litres/hour) is engraved on the scale ring (9). The piston stroke and therefore the discharge volume can be adjusted by turning the vernier gauge (10). The knurled screw (6) is used to lock the scale head.

Dosing pump		160 l / h	250 l / h	380 l / h	400 l / h	500 l / h
10	turns of the scale ring correspond to	160 l/h	250 l/h	380 l/h	400 l/h	500 l/h
1	turn of the scale ring corresponds to	16 l/h	25 l/h	38 l/h	40 l/h	50 l/h
10	bars on the vernier gauge correspond to	16 l/h	25 l/h	38 l/h	40 l/h	50 l/h
1	bar on the vernier gauge corresponds to	1.6 l/h	2.5 l/h	3.8 l/h	4.0 l/h	5.0 l/h

Example

Dosing pump		160 l / h	250 l / h	400 l / h	500 l / h
	Dosing output to be set	24.0 l/h	37.5 l/h	60.0 l/h	75.0 l/h
1	turn of the scale ring	16.0 l/h	25.0 l/h	40.0 l/h	50.0 l/h
5	sub-bars on the vernier gauge	<u>8.0 l/h</u>	<u>12.5 l/h</u>	<u>20.0 l/h</u>	<u>25.0 l/h</u>
	meaning that 1.5 turns give	<u>24.0 l/h</u>	<u>37.5 l/h</u>	<u>60.0 l/h</u>	<u>75.0 l/h</u>

8.8 Cleaning

NOTICE



Useful tips and recommendations for users

- At the end of each dosing process the dosing pump must be thoroughly rinsed out with clean water so that there is no Kieselguhr residue left in the pump head. The pump is clean after water has flowed through it for approx. 1-2 minutes.
- It is important to clean the dosing pump so that no Kieselguhr is deposited in the line or pump.

8.9 Shut-down

Before shutting down, carry out cleaning in accordance with the "Cleaning" section.

8.10 Recommissioning

For recommissioning, proceed as with initial commissioning.

8.11 Emergency shut-down

Carry out cleaning after an emergency shut-down.

9 MAINTENANCE AND SERVICING

9.1 Care

The environment and machinery / equipment must be kept clean.

NOTICE	
i	<p>Useful tips and recommendations for users</p> <ul style="list-style-type: none"> → Modifications or changes to the machine / equipment are only permitted in consultation with the manufacturer. For safety reasons, only genuine spare parts and accessories approved by the manufacturer should be used. The use of other parts shall invalidate our liability for any consequential damage. → Different oils must not be mixed. When changing the oil type, the gear system must first be flushed with the new oil. → Maintenance should be only performed by Bucher Unipektin AG personnel or specialists with the necessary knowledge. → Ensure that the operating instructions have been read and understood before performing any maintenance work.

9.2 Periodic checks

NOTICE	
i	<p>Daily check</p> <ul style="list-style-type: none"> → Check the oil level in the expansion tank. → Check the tightness of the pump head. <p>Monthly check</p> <ul style="list-style-type: none"> → Check the oil level in the housing using the sight glass. → Check the valve units, balls and crowns for wear.

9.3 Repairs

Specialist personnel from the operator are required to perform repair work. However, it is recommended that this work be carried out by Bucher Unipektin AG personnel.

9.4 Maintenance

For item numbers, see diagram 1-1711 under Spare Parts

Checking the diaphragm	Remove the dome unit (29), briefly switch on the pump and check the condition of the diaphragm (28). We recommend that the diaphragm is replaced annually.
Draining the oil (when changing)	We recommend draining the Klüberoil 4UH1 68 (77) through the draining screw (43) underneath and removing the expansion tank (25).
Replacing the diaphragm	Remove the dome unit (29), loosen the cylinder screws (72), remove the pump head (30) and dismantle the diaphragm (28).
Suction and discharge valves (31)	The valve units (205), balls (204) and crowns (203) are subject to wear and must be replaced from time to time. Balls and valve units should always be replaced immediately.
Gear oil in the housing	The gear oil should be changed after 2-3 years of operation. Oil type: in accordance with section 7.2 Oil volume: 2.4 litres Empty via the draining screw on the side (43) and remove the ventilation screw (53). Fill with a funnel through the opening left by removing the ventilation screw (53). While filling, bleed off air through the thread on the gear motor-drive housing mounting bolts.
Grease in the gear motor	The gearing is filled with a synthetic semifluid grease. This is sufficient for an operating life of approx. 8000-10000 hours. If the grease needs to be replaced, the 2-part housing must be separated. The wheels are then exposed and the interior of the gearing can be cleaned and filled with fresh grease. Grease type: in accordance with section 7.2
Lubricating the stroke adjustor	The stroke adjustor should be lubricated at regular intervals to prevent jamming.

9.5 Minor inspection: Interval 1 year

For item numbers, see diagram 1-1711 under Spare Parts

Disassembly:	
1.	Depressurise lines.
2.	Disassemble lines.
3.	Loosen cylinder screws (67) and disassemble dome unit (29).
4.	Fully unscrew the suction and discharge valves (31).
5.	Unscrew expansion tank (25) and drain Klüberoil 4UH1 68 (77).
6.	Drain Klüberoil 4UH1 68 (77) in housing via the locking screw (43).
7.	Undo cylinder screws (72) and remove pump head (30).
8.	Replace diaphragm (28).
9.	For the suction and discharge valves (31), use a mandrel to push out the valve units (205) with the balls (204) and crowns (203) from underneath.
10.	Clean valve housing thoroughly.
11.	Replace the two O-rings (61) on the suction and discharge valves.
Assembly:	
1.	Assemble the valve units (205), balls (204) and crowns (203) in the correct sequence.
2.	Insert new diaphragm (28) and clamp in place with pump head (30).
3.	Tighten cylinder screws (72) evenly.
4.	Replace O-ring (59) and mount dome unit (29).
5.	Tighten cylinder screws (67) evenly.
6.	Install the cleaned expansion tank (25).
7.	Fully install the suction and discharge valves (31).
8.	Install locking screw with seal (42, 43).
9.	Install lines.
10.	Fill with oil (oil volume 0.36 l).
11.	For this process the dosing line (dosing unit) should be filled with a little water. There must be a slight counter-pressure in the lines.

9.6 Major inspection: Interval 5 years

For item numbers, see diagram 1-1711 under Spare Parts

Disassembly:	
1.-11.	See Minor inspection
12.	Remove cylinder head (24).
13.	Undo hexagonal nuts (64).
14.	Remove piston (23) with cylinder (22), then push piston out of cylinder.
15.	Replace gasket (21) and O-rings (56, 59, 60).
16.	The radial shaft sealing ring (54) must be replaced in the event of a defect.
17.	The gear motor (15) can be removed by loosening the screws (51).
18.	The needle bearings (45, 47, 48) can be replaced with the locking rings (46, 73).
19.	The gear oil (76) can be drained via the oil drainage screw (43).
20.	After removing the screws (36) with the spindle guide (4), the spindle (5) can be removed.
21.	Replace the radial shaft sealing ring (35).
22.	Replace any defective parts.
23.	Clean housing.
24.	Remove old oil.

Assembly:	
1.	Install spindle guide (4) plus spindle (5).
2.	Turn spindle (5) as far forwards as possible.
3.	Insert the radial shaft sealing ring (54).
4.	Screw in locking screw (43).
5.	Fill gear oil (76).
6.	Position gear motor (15), then attach with screws (51).
7.	Install cylinders (22) and insert the flat gasket (21) in the correct position.
8.	Assemble the piston (23) with new O-ring (58). Place the O-ring (58) in Klüberoil 4UH1 68 first.
9.	Tighten up the piston (23) with locking plate (65) and nut (64).
10.	Push in cylinder head (24) using two screws (72) as a guide (to position holes correctly).
11.	Remove auxiliary screws. Insert diaphragm (28) and compress with pump head (30) using cylinder screws (72).
12.-22.	See Minor inspection.

9.7 Expansion tank inspection: Interval 1 year

For item numbers, see diagram 4-1711-05 under Spare Parts

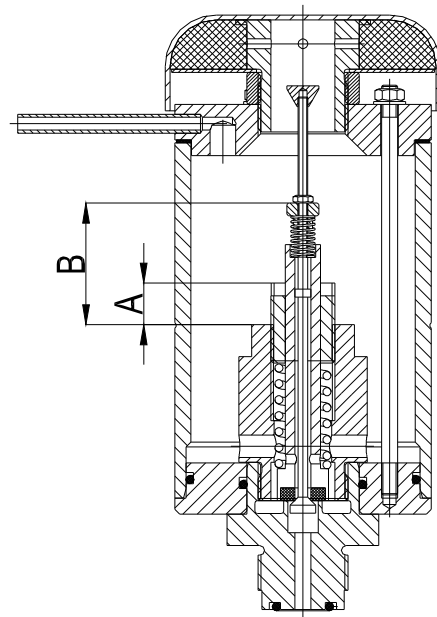
Disassembly:	
1.	The dosing pump should not have any counter-pressure.
2.	Remove dust cover (11).
3.	Remove line (15).
4.	The tank cover (2) can be removed by loosening the hexagonal nuts (25).
5.	Loosen the expansion tank with key and unscrew.
6.	Drain and dispose of oil (77).
7.	Remove glass cylinder (4).
8.	NB: Note down the distances A and B to the adjusting screw (7) and adjusting nut (9)
9.	Remove handle (14).
10.	Loosen counternuts (9) and remove (it is important to retain the length of the adjustment screw on the valve rod).
11.	The flat gasket (16) and valve rod (10) are exposed by loosening the threaded socket (6).
12.	Remove base (1).
13.	Replace O-rings (19, 20, 21).

Assembly:	
1.	Assemble base (1).
2.	Insert flat gasket (16).
3.	Assemble valve rod (10) with the compression spring (23) and screwed socket (6).
4.	Install glass cylinder (4).
5.	Install compression spring (22) and screw together using adjustment screw (7) and counternut (9) with handle (14).
6.	Fill with oil (77).
7.	NB: Set the adjusting screw and adjusting nut to the dimensions A and B you noted down.
8.	Assemble gasket (17), tank cover (2) with hexagonal nuts (25) and packing washers (26).
9.	Install dust cover (11) and ventilation line (15).
10.	A test run should be carried out using water in the tank and line.
11.	If the oil rises in the tank, please tighten the adjusting screw (7).
12.	If the oil level drops, please loosen the adjusting screw (7).
13.	The oil level in the tank should be as close to the mark as possible.

NB: Distances A and B must be set to the dimensions of the expansion tank used every time it is replaced or inspected.

Measured dimension A:.....

Measured dimension B:.....



10 TROUBLESHOOTING

10.1 General troubleshooting

Problem	Possible causes	Solution
Pump not providing suction	Valves incorrectly inserted	Check valves
	Valves blocked	Clean valves
	Valve not tight	Replace seal
	Stroke setting too low (before pump head filled)	Set stroke to max. dosage
	Connections not tightened (pump sucking in air)	Replace seals if necessary
	Counter-pressure too high	Open valve in pressure line
Discharge level too low	All the points mentioned above also apply if the discharge level is too low.	
	Reduced electrical voltage → motor is not reaching the normal rotation speed.	

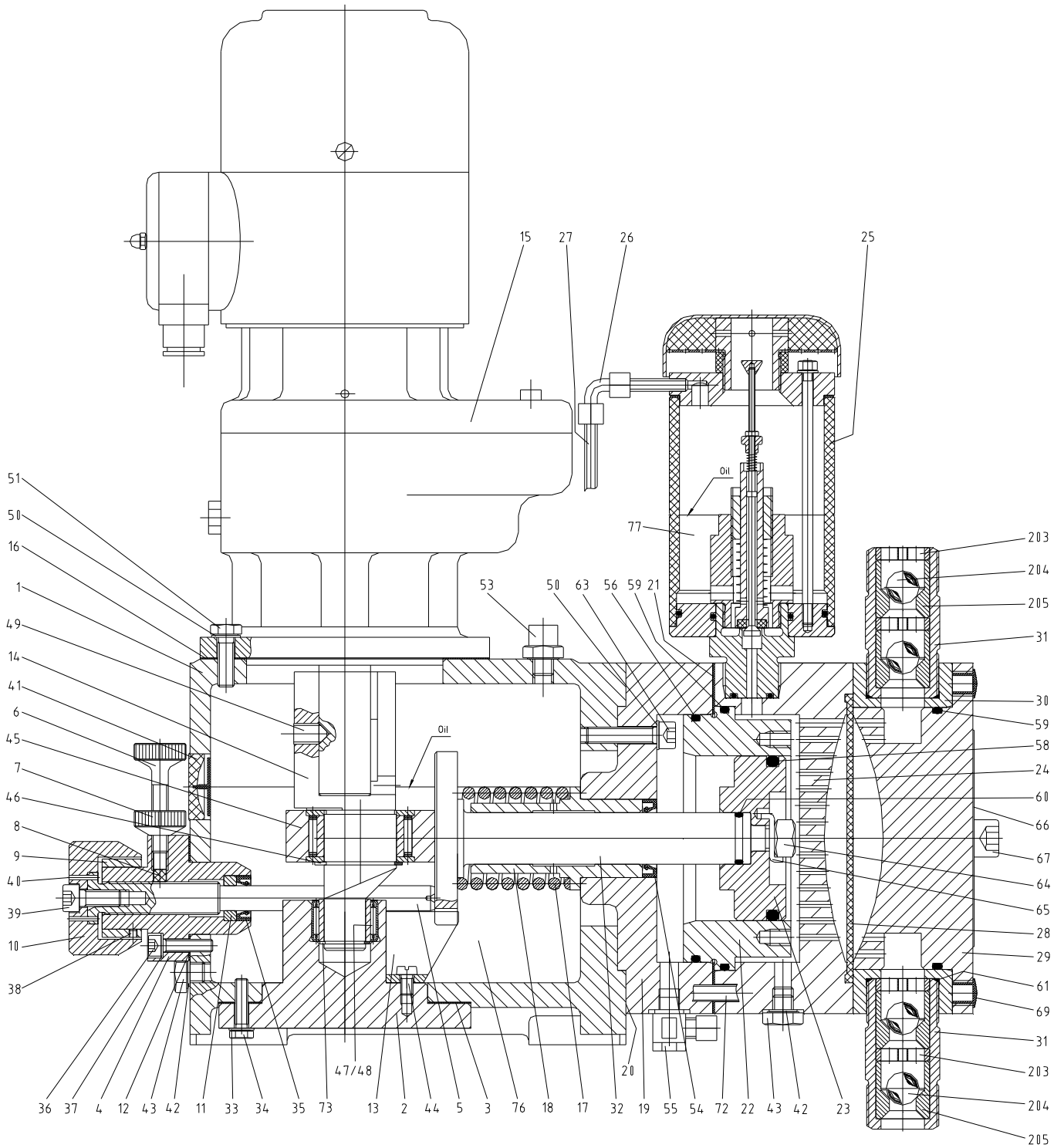
10.2 Bucher Unipektin AG Customer Service

If you have any further questions, please contact our Customer Service Department. Tel: +41 44 857 29 00

11 SPARE PARTS

11.1 DOSINOX E2 Diaphragm Pump

Drawing 1 – 1711



Item	Part number	Part name	Maintenance	Item	Part number	Part name	Maintenance
1	138122	Housing		34	102561	Hexagonal screw	
2	138143	Bearing flange		35	103802	Radial shaft sealing ring	Y
3	104893	Flat gasket	Y	36	102507	Cylindrical screw	
4	138227	Spindle guide		37	104815	Flat gasket	Y
5	138225	Spindle		38	102285	Grub screw	
6	138202	Knurled screw		39	102515	Cylindrical screw	
7	138201	Knurled nut		40	102264	Split pin	
8	138090	Bolt		41	109106	Oil sight glass	
9	138219	Scale ring 16-160 l/h		42	104817	Flat gasket	Y
9	138220	Scale ring 25-250 l/h		43	110812	Locking screw	
9	138217	Scale ring 40-400 l/h		44	102710	Cylindrical screw	
9	138218	Scale ring 50-500 l/h		45	108544	Needle bearing supporting roller	5 Y
10	138185	Vernier gauge		46	102012	Locking ring	
11	138091	Bushing		47	108537	Needle bush with sleeve	5 Y
12	104887	Flat gasket	Y	48	108539	Needle inner ring	5 Y
13	138119	Guide	Y	49	102359	Grub screw	
14	138111	Eccentric shaft		50	104816	Flat gasket	Y
15		Gear motor		51	102571	Hexagonal screw	
16	104886	Flat gasket	Y	53	113732	Ventilation screw	
17	108666	Spring		54	103805	Radial shaft sealing ring	Y
18	138118	Guide	Y	55	113574	Swivel screw	
19	138256	Cylinder guide		56	103273	O-ring	Y
20	104889	Flat gasket	Y	58	161083	O-ring	Y
21	104888	Flat gasket	Y	59	104247	O-ring	Y
22	138253	Cylinder		60	103135	O-ring	Y
23	138129	Piston		61	104189	O-ring	Y
24	138259	Cylinder head		63	102518	Cylindrical screw	
25	138074	Expansion tank		64	102665	Hexagonal nut	
26	113567	Angled screw		65	102788	Locking plate	Y
27	138145	Line		66			
28	104548	Diaphragm	Y	67	102531	Cylindrical screw	
29	138126	Dome unit 316 L		69	108729	Protective plug	Y
30	138198	Pump head 316 L		72	102523	Cylindrical screw	
31	138211	Complete valve 316 L	Y	73	102010	Locking ring	Y
32	138133	Piston rod		76	116425	Gear oil	Y
33	104815	Flat gasket	Y	77	174747	Expansion tank oil	Y

Interval: Y = 1 year

Interval: 5 Y = 5 years

All other parts should be changed when needed.

Kit for parts in contact with medium, part No. 171489

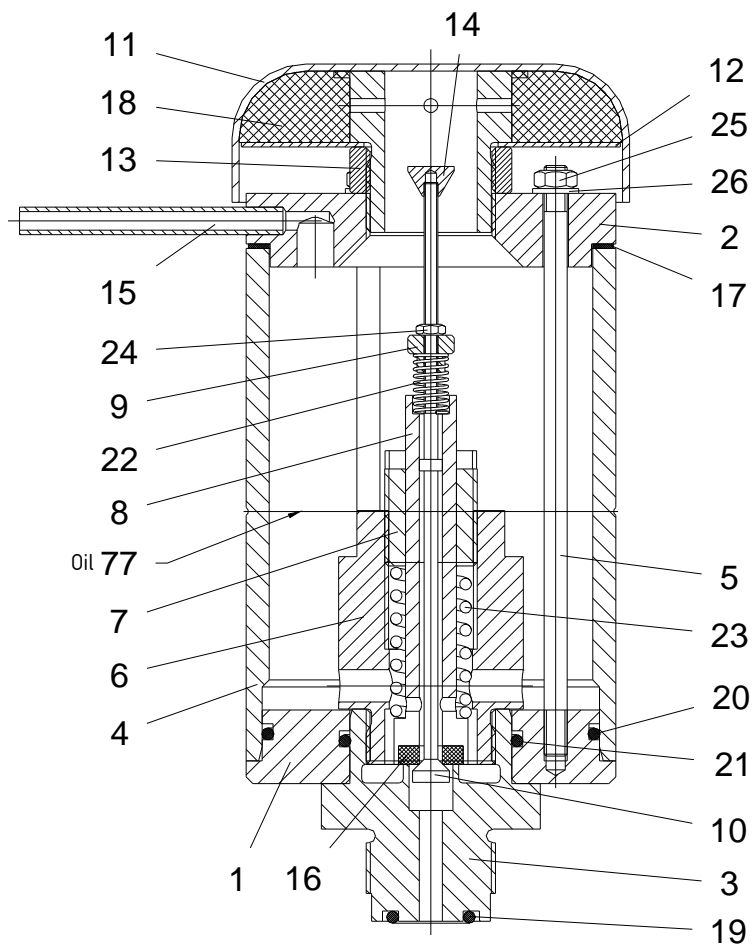
Item	Part number	Part name	No. of pieces
21	104888	Flat gasket	1
28	104548	Diaphragm	1
42	104817	Sealing ring	1
56	103273	O-Ring 110.7 x 3.53	1
58	161083	O-Ring 69.2 x 5.7	1
59	104247	O-Ring 120.2 x 3.53	2
60	103135	O-Ring 20.24 x 2.62	1
65	102788	Locking plate	1
69	108729	Protective plug	2

Kit for gear parts, part No. 171490

Item	Part number	Part name	No. of pieces
3	104893	Flat gasket	1
12	104887	Flat gasket	1
16	104886	Flat gasket	1
20	104889	Flat gasket	1
33, 37	104815	Sealing ring	8
35	103802	Radial shaft sealing ring	1
42	104817	Sealing ring	1
47	108537	Needle bush	1
48	108539	Needle inner ring	1
50	104816	Sealing ring	8
54	103805	Radial shaft sealing ring	1
73	102010	V locking ring	1

11.2 Complete expansion tank

Drawing 4 – 1711 – 05



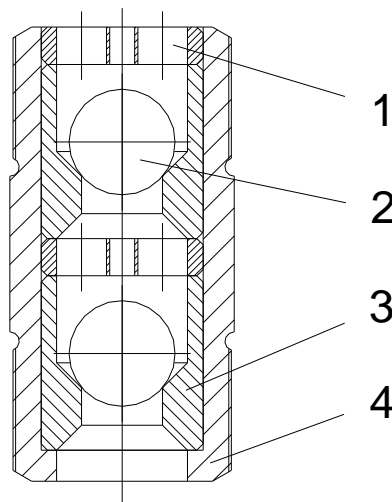
Item	Part number	Part name	Maintenance	Item	Part number	Part name	Maintenance
1	138089	Base		15	138206	Pipe section	
2	138092	Tank cover		16	104686	Flat gasket	Y
3	138070	Connection nozzle		17	103651	Flat gasket	Y
4	109104	Glass cylinder		18	104608	Filter	Y
5	138251	Pull rod		19	103129	O-ring	Y
6	138104	Screwed socket		20	103258	O-ring	Y
7	138249	Adjusting screw		21	103150	O-ring	Y
8	138242	Guide		22	108670	Compression spring	
9	138105	Adjusting nut		23	108684	Compression spring	
10	138247	Valve rod		24	102862	Hexagonal nut	
11	138094	Dust cover		25	102661	Hexagonal nut	
12	138147	Perforated metal plate		26	102759	Packing washer	
13	138102	Spacer nut		77	174747	Klüberoil 4UH1 68N	Y
14	138103	Handle					

Interval: Y = Yearly All other parts should be changed when needed.

Kit for expansion tank, part No. 171488

Item	Part number	Part name	No. of pieces
16	104686	Flat sealing ring	1
17	103651	Flat sealing ring	1
19	103129	O-Ring 13.95 x 2.62	1
20	103258	O-Ring 67.95 x 2.62	1
21	103150	O-Ring 34.60 x 2.62	1

11.3 Complete valve



Item	Part number	Part name	Maintenance
1	138140	Crown	Y
2	108596	Agate ball	Y
3	138240	Valve unit	Y
4	138244	Valve housing	
	103632	Seal	Y

Interval: Y = Yearly All other parts should be changed when needed.

Kit for non-return valve M35x1.5, part No. 171486

Item	Part number	Part name	No. of pieces
1	138140	Crown	2
2	108596	Agate ball	2
3	138240	Valve unit	2
61	104189	O-Ring 29.82 x 2.62	1

11.4 Order form for replacement parts

A replacement part order form is available in the appendix.

12 DISPOSAL REGULATIONS

The device must be drained, depressurised and free of dangerous media (acid, alkali, hot water, gasses).

12.1 Pump

Disposal must take place in accordance with local regulations.
The equipment is made of various materials and, wherever possible, must be recycled.

12.2 Filter aid residues

Disposal must take place in accordance with local regulations.

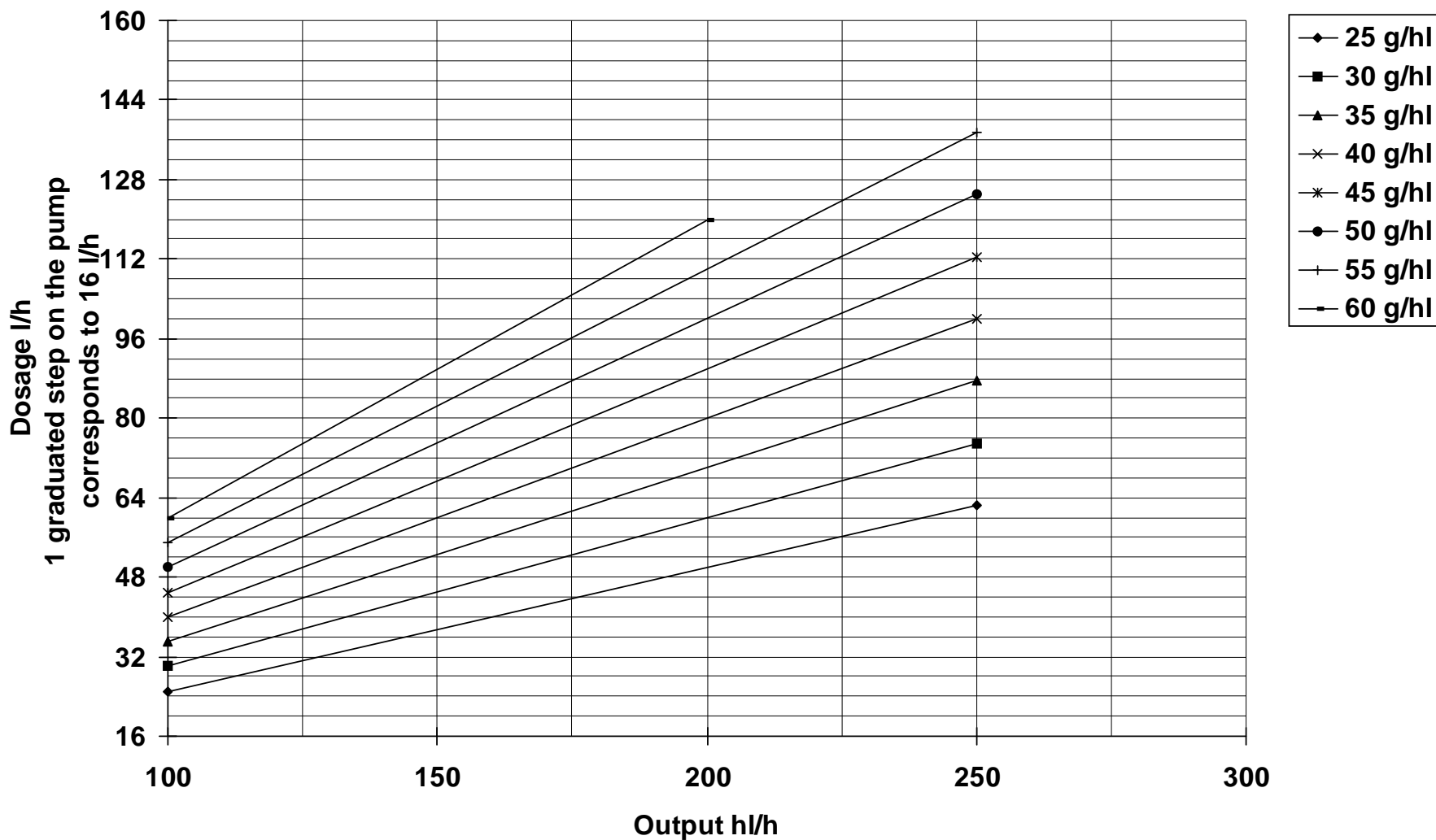
12.3 Oil

Disposal must take place in accordance with local regulations.

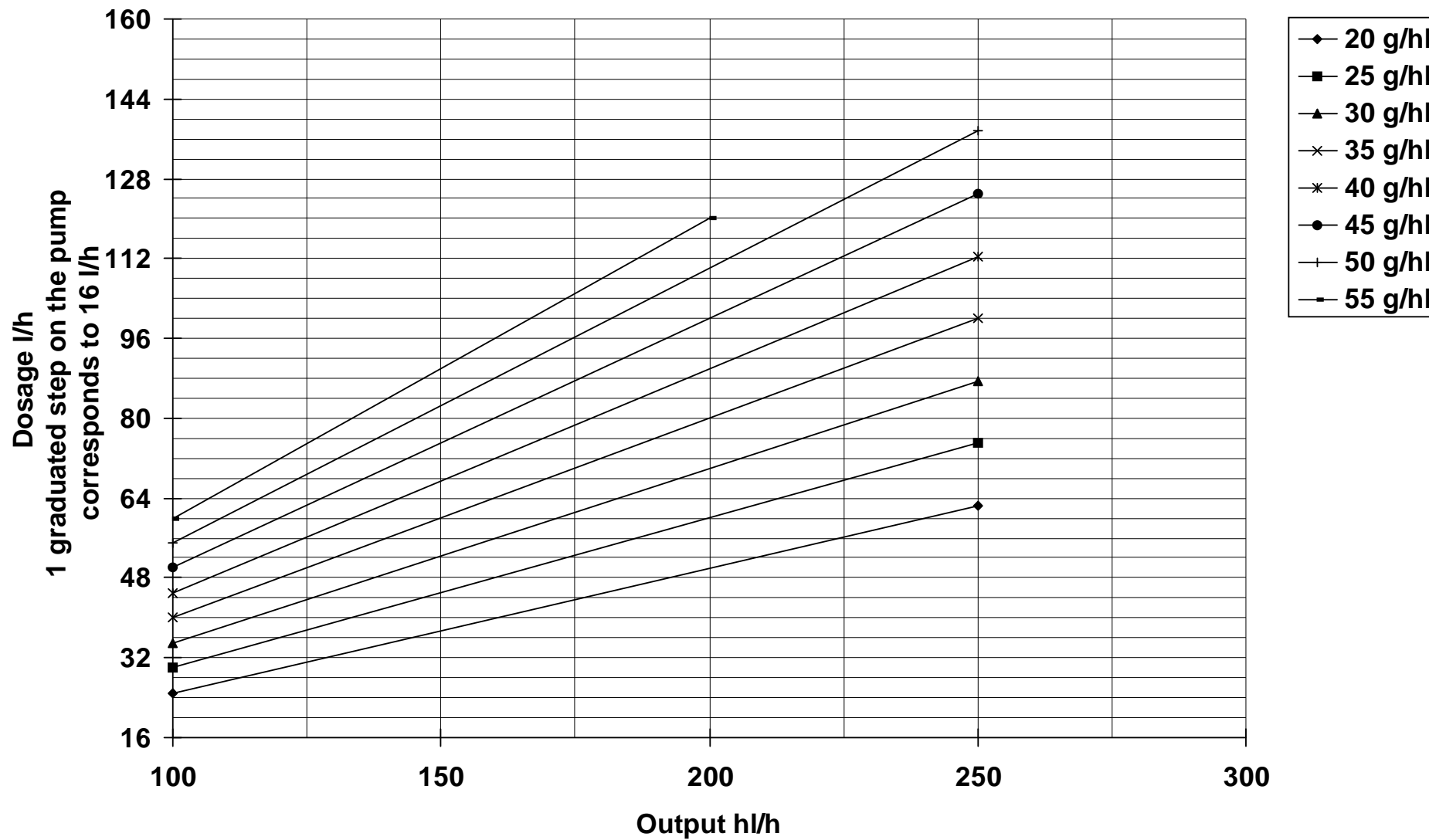
13 APPENDIX

- Order form for replacement parts
- Dosing diagrams

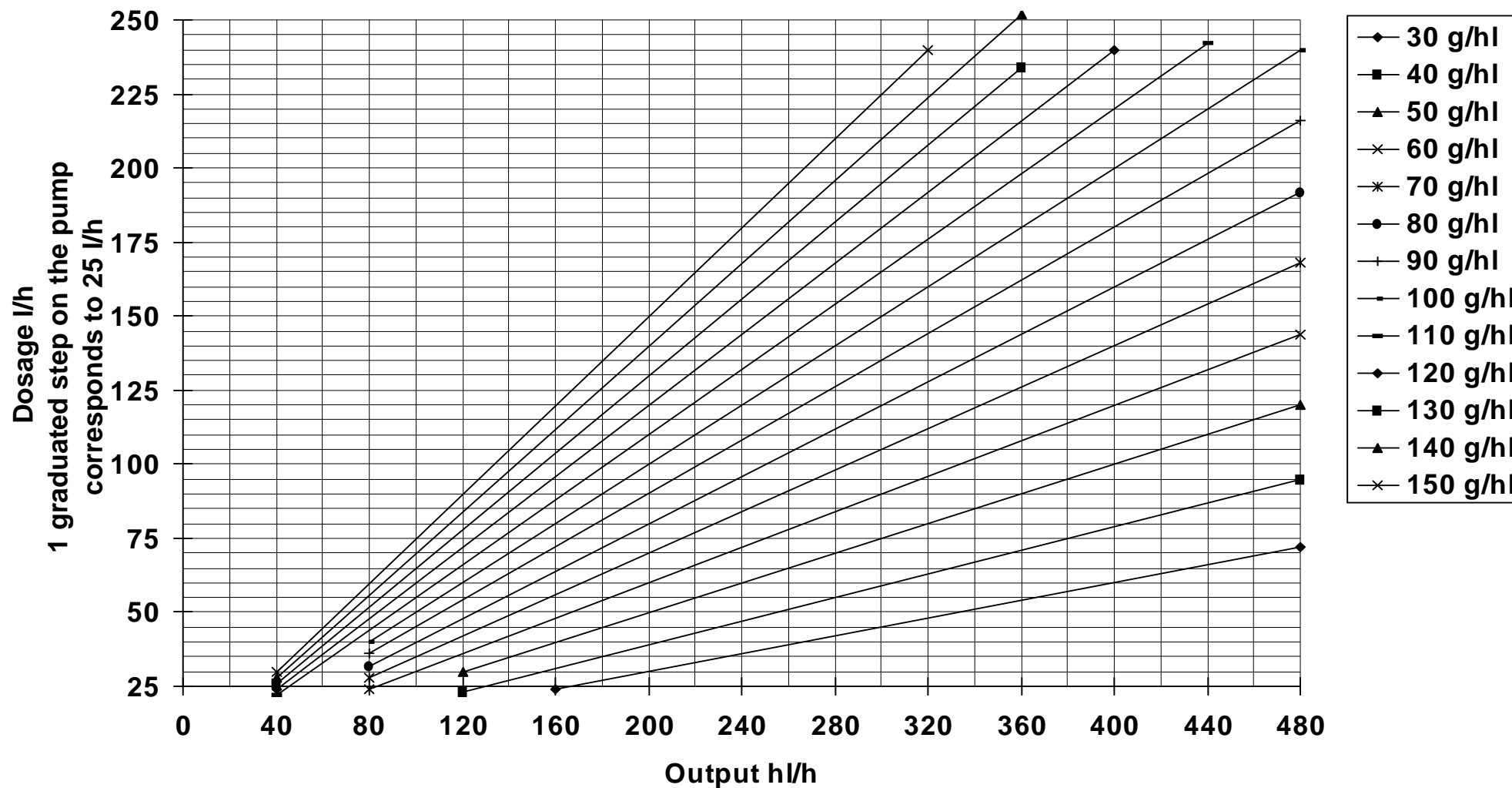
Dosage diagram 160 l/h Mixing ratio 1:10



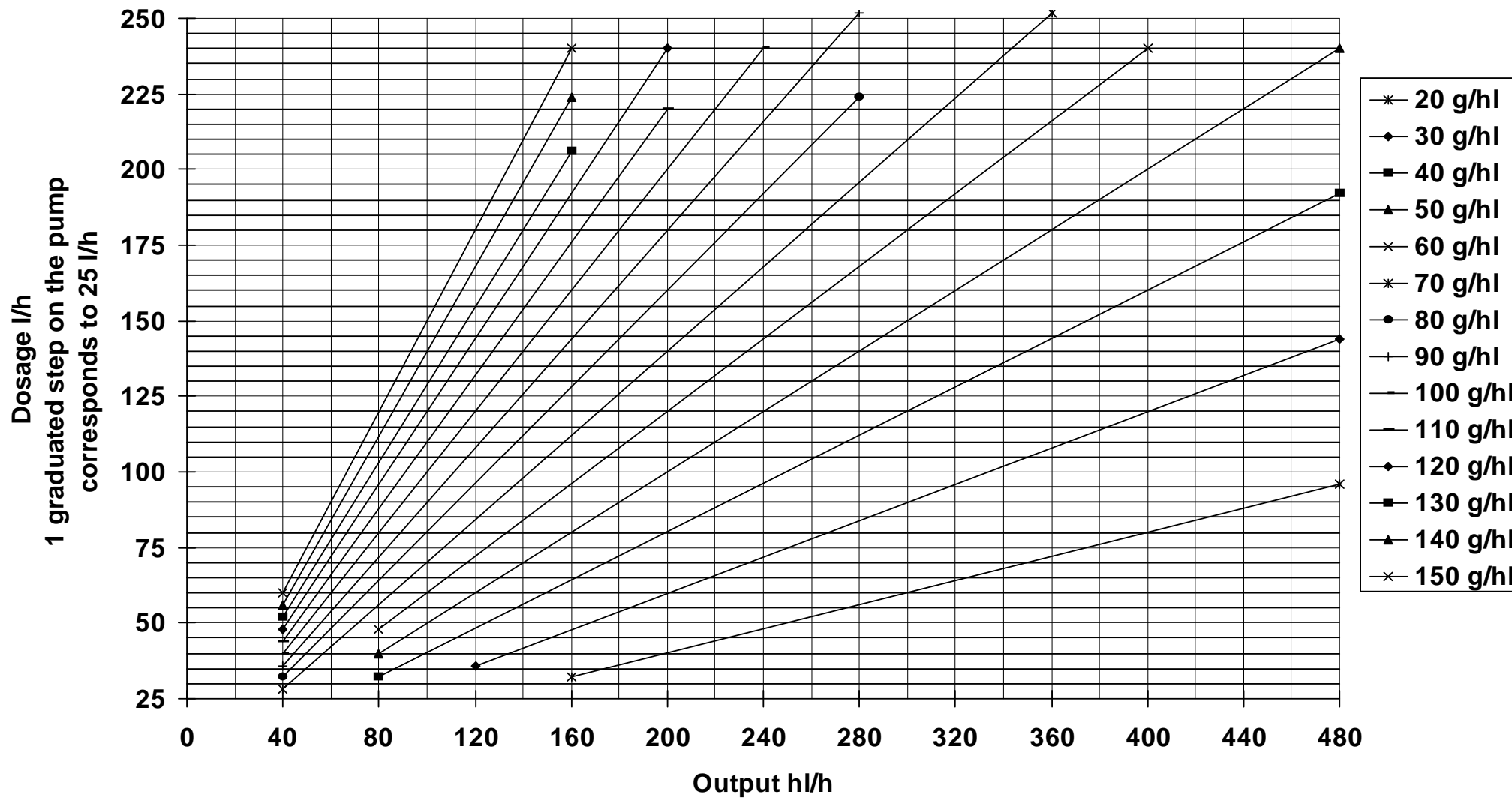
Dosage diagram 160 l/h Mixing ratio 1:12



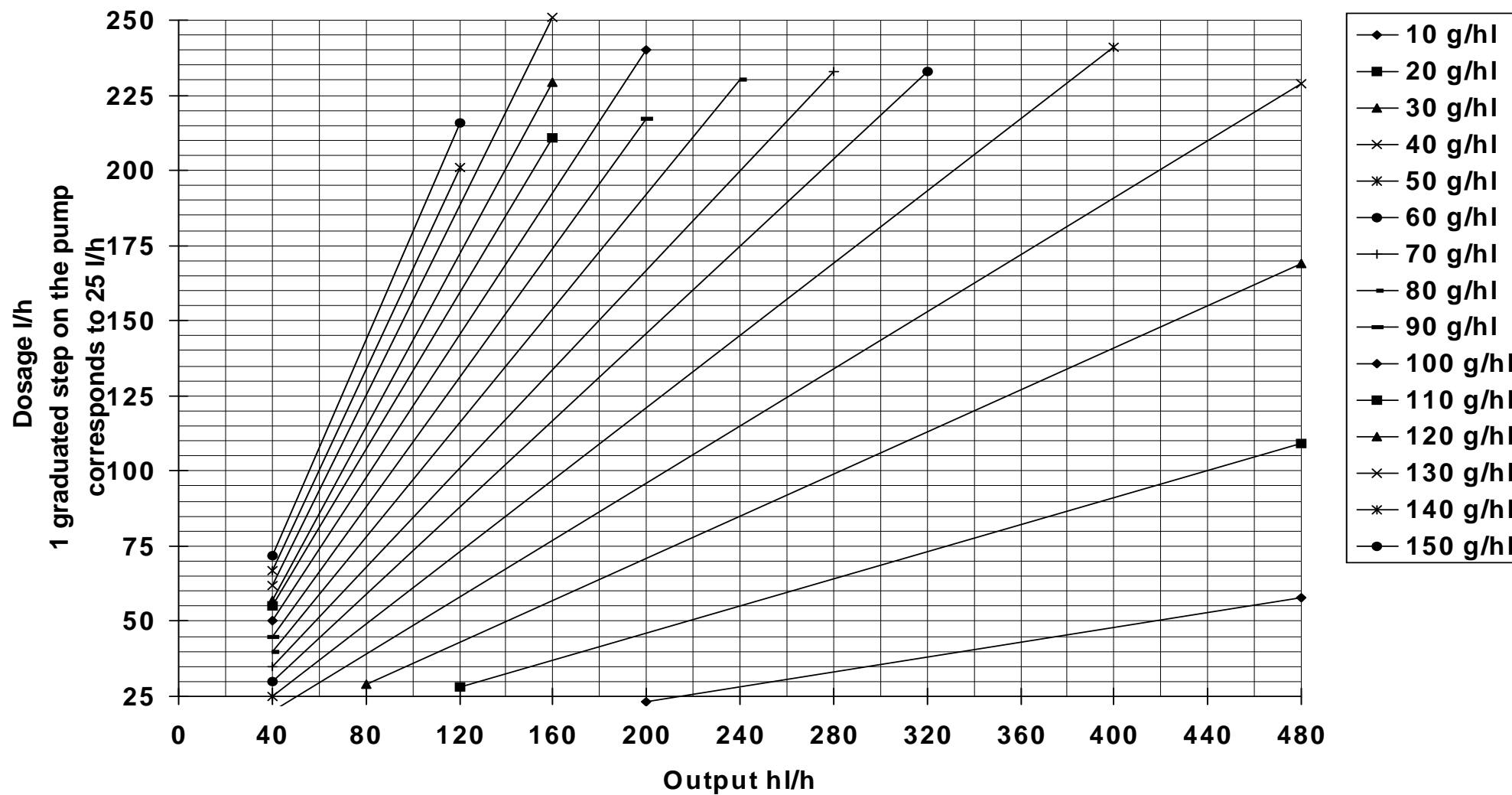
Dosage diagram 250 l/h Mixing ratio 1:5



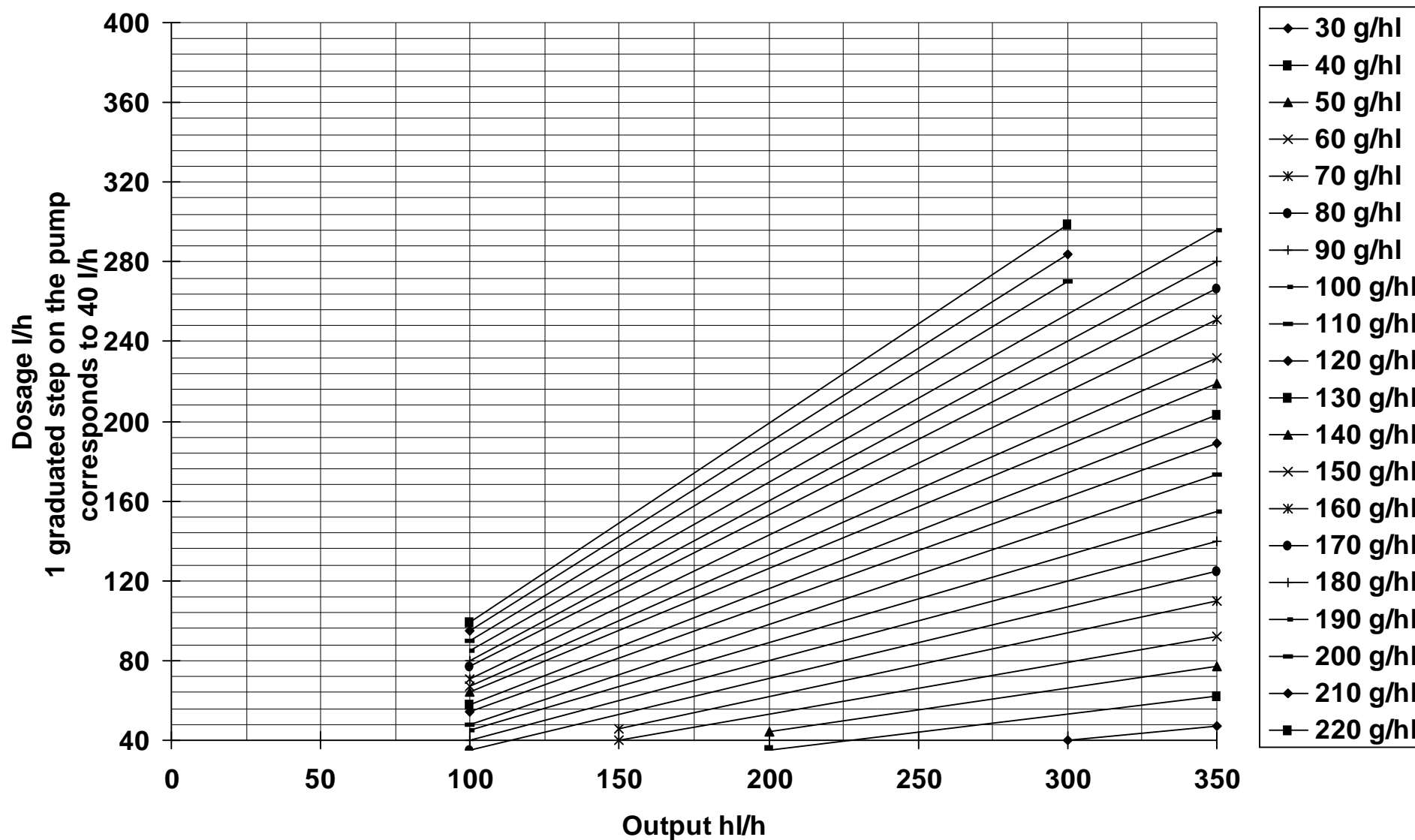
Dosage diagram 250 l/h Mixing ratio 1:10



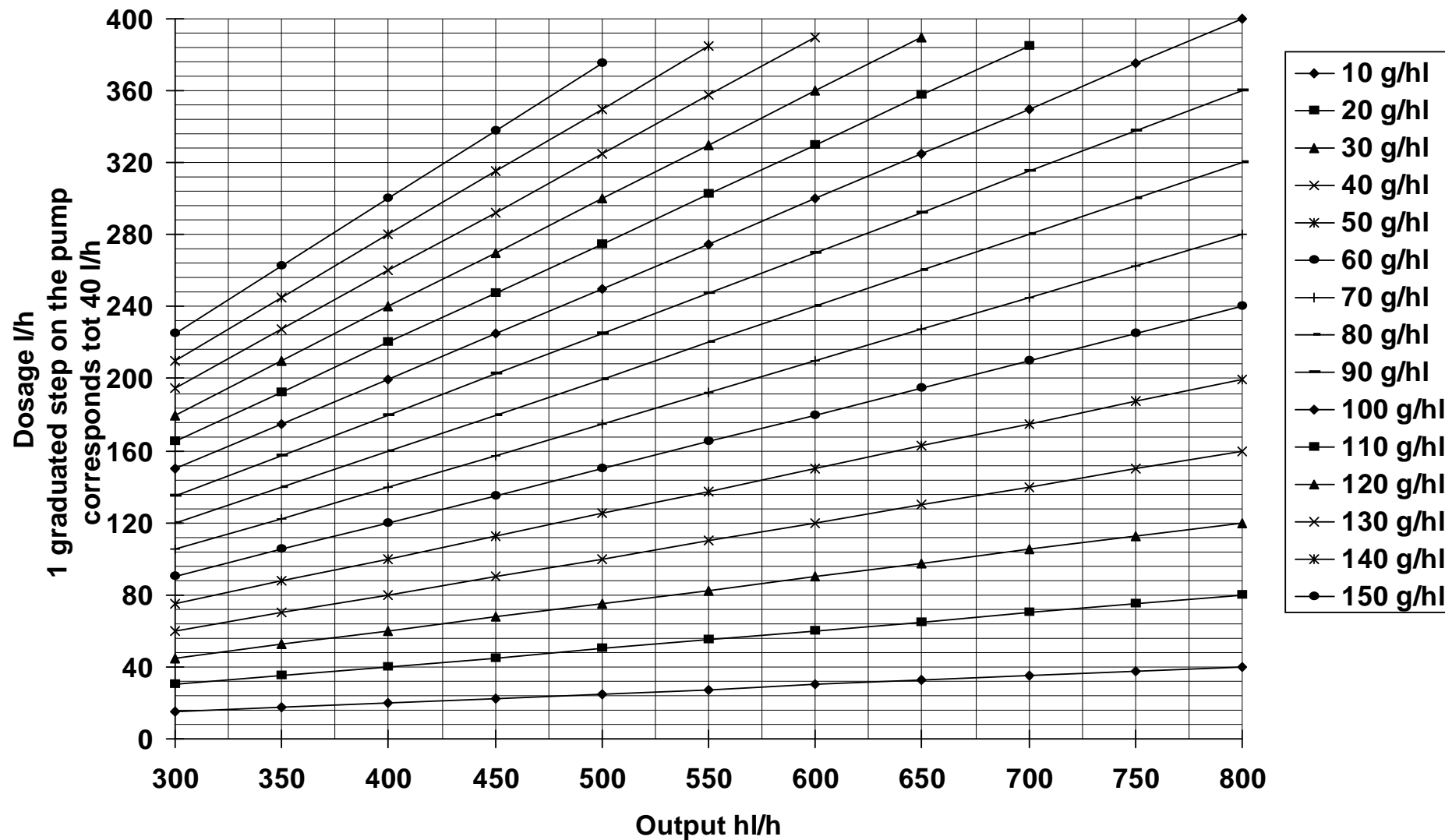
Dosage diagram 250 l/h Mixing ratio 1:12



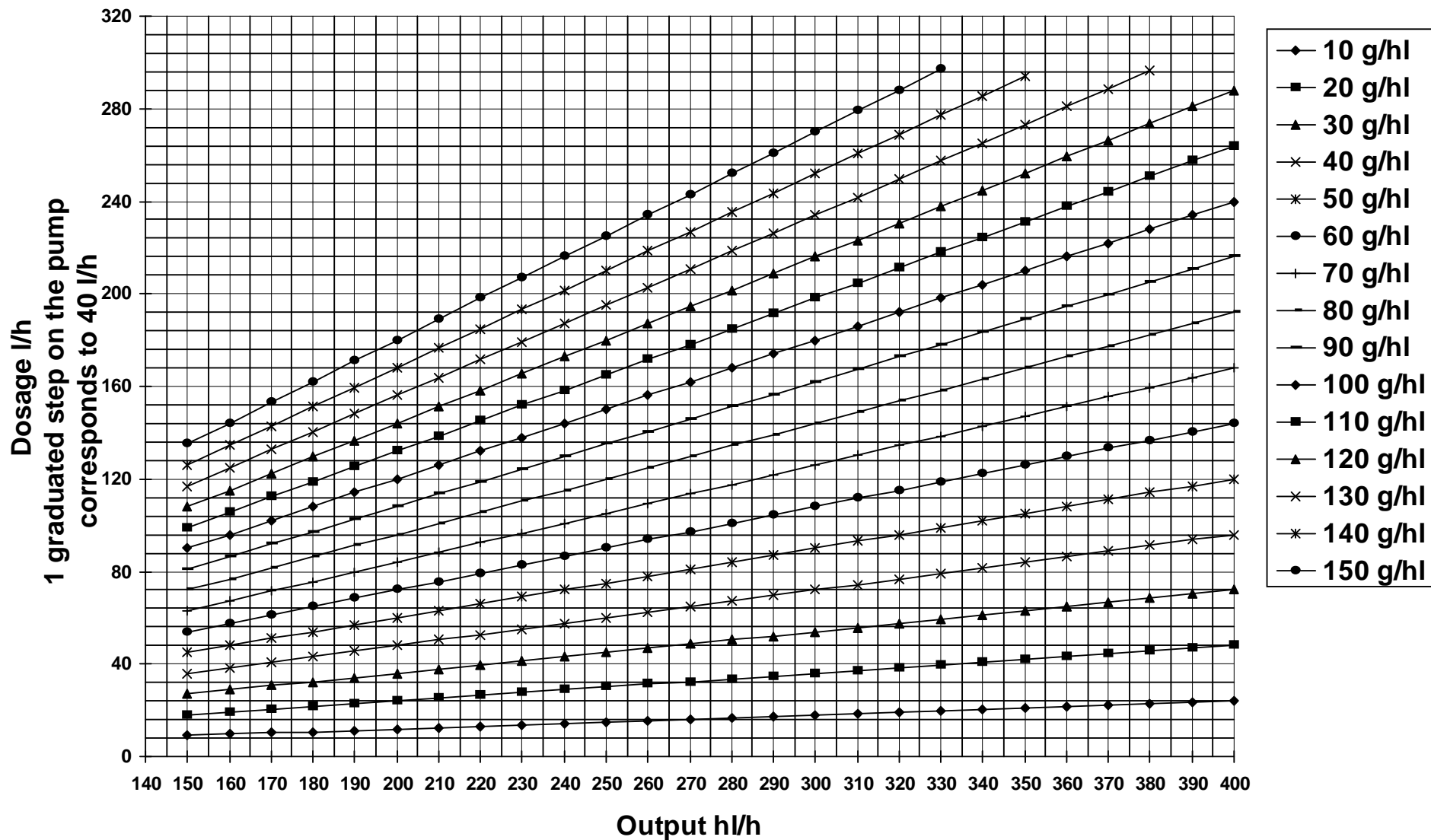
Dosage diagram 400 l/h Mixing ratio 1:4,5



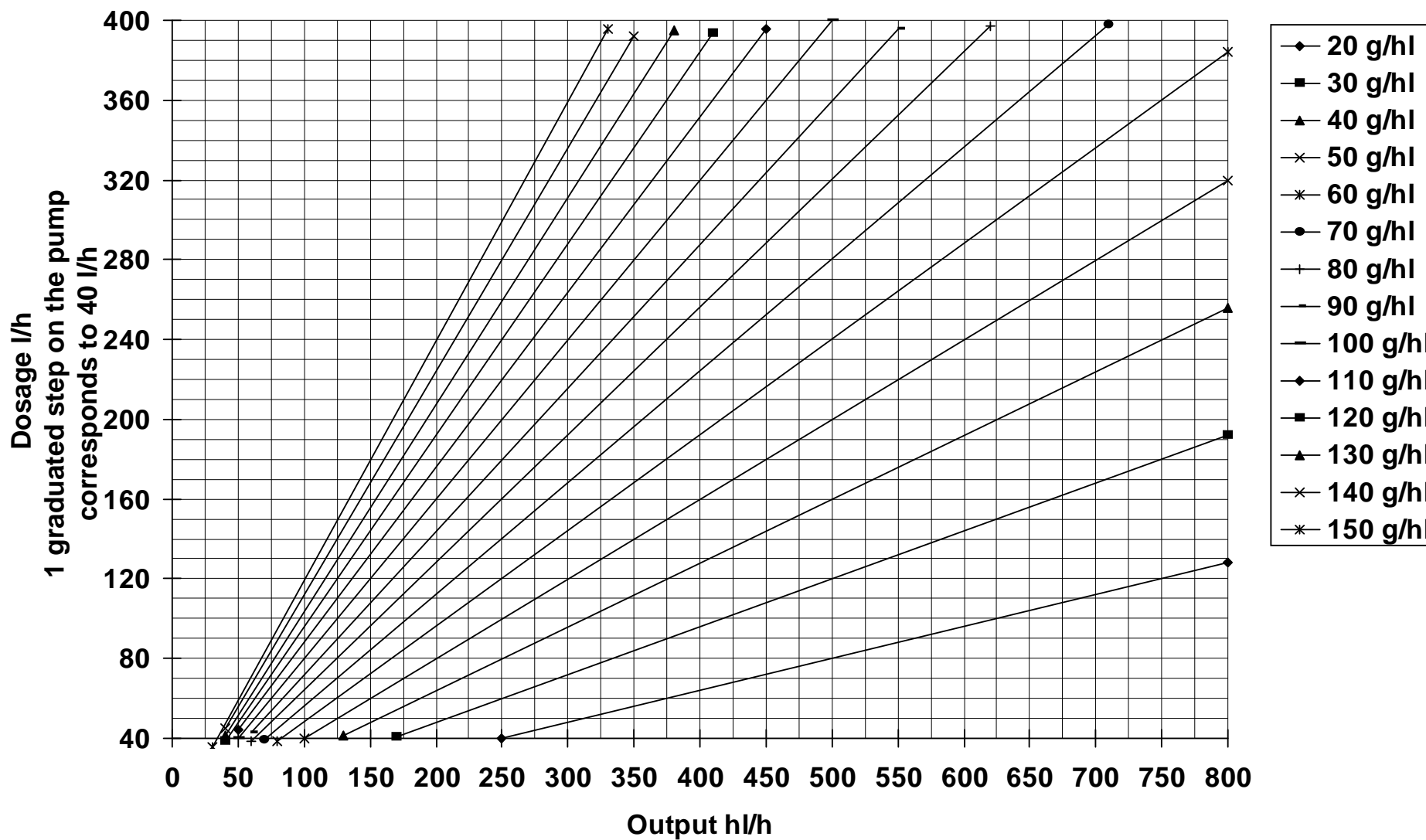
Dosage diagram 400 l/h Mixing ratio 1:5



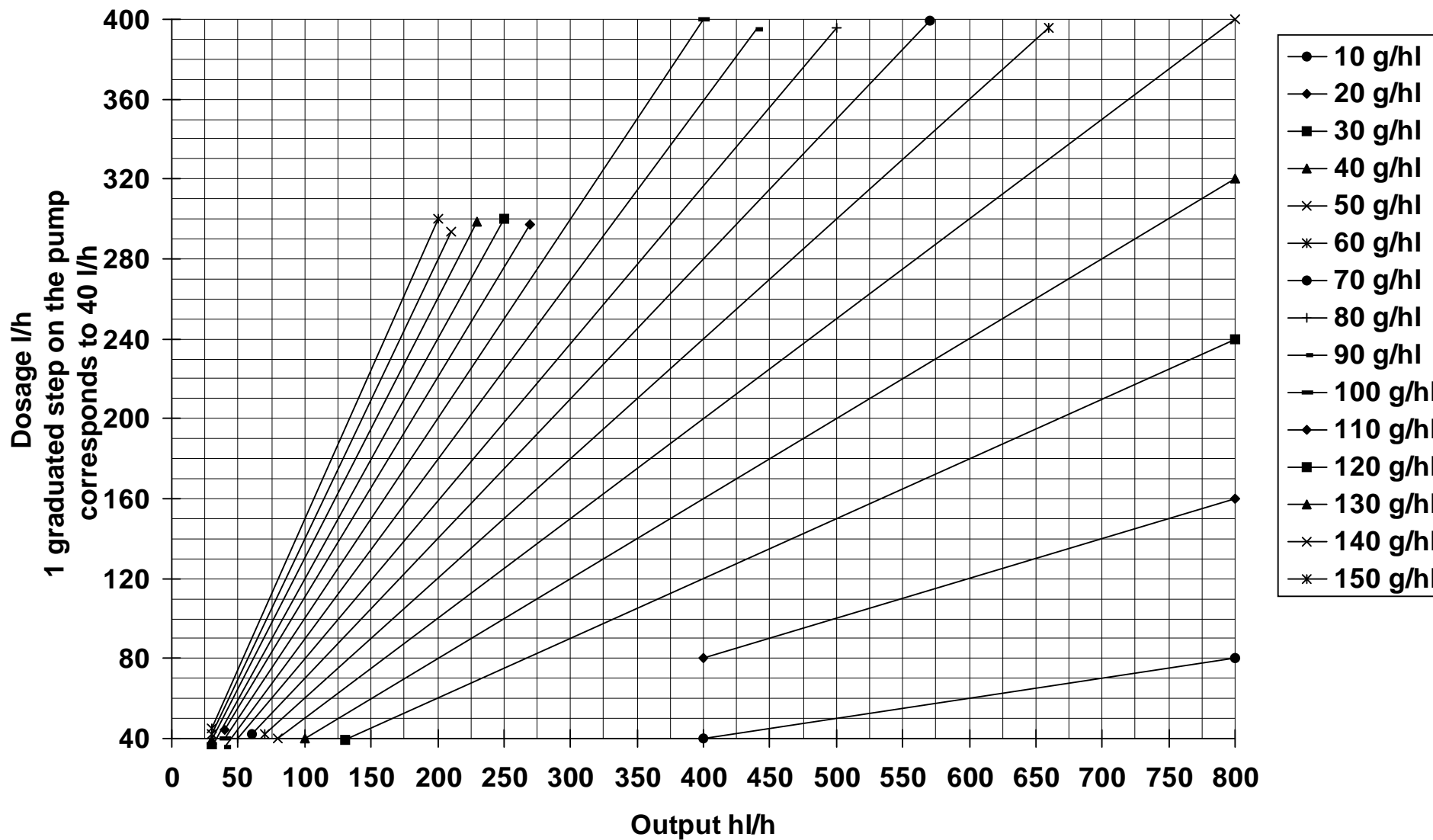
Dosage diagram 400 l/h Mixing ratio 1:6



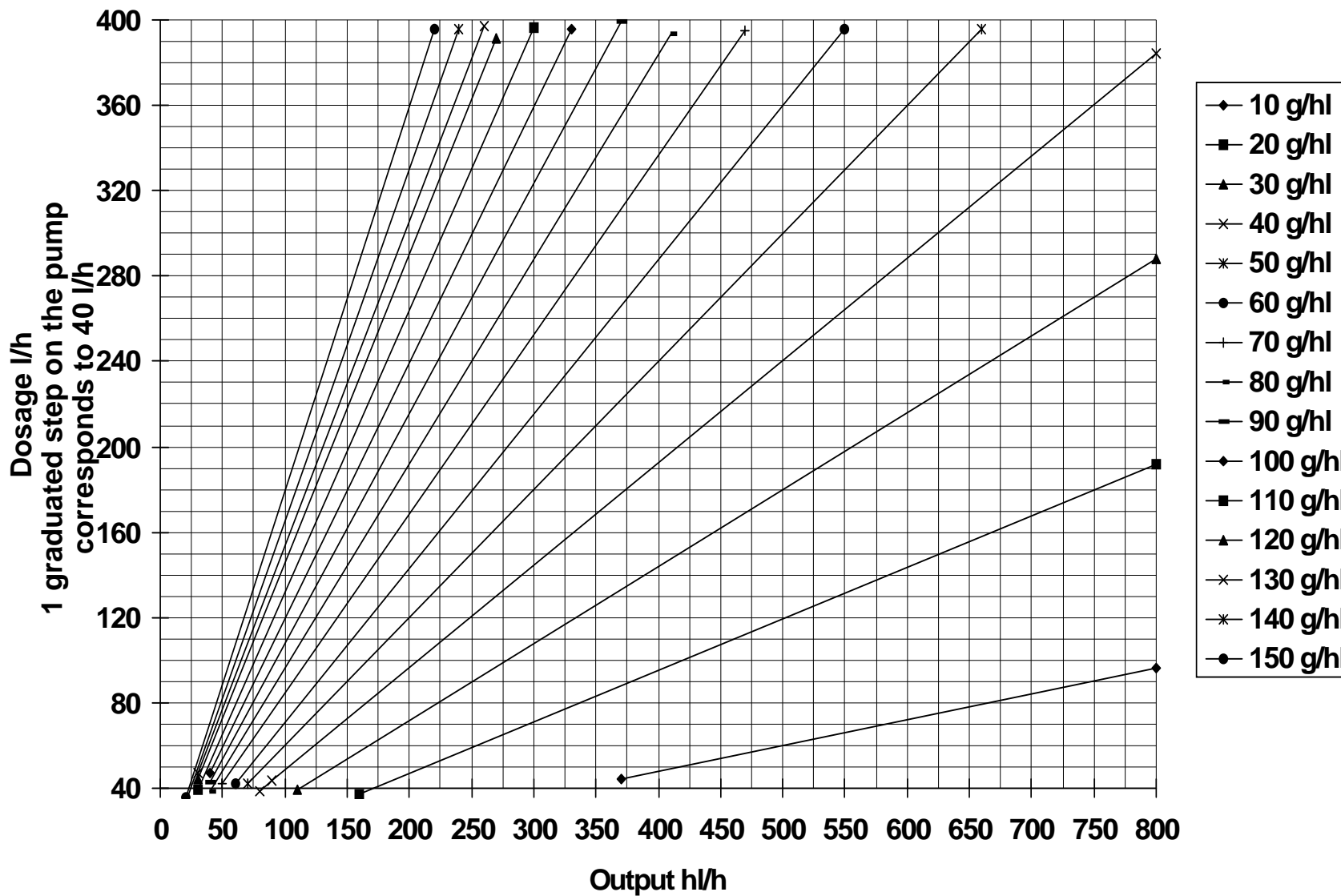
Dosage diagram 400 l/h Mixing ratio 1:8



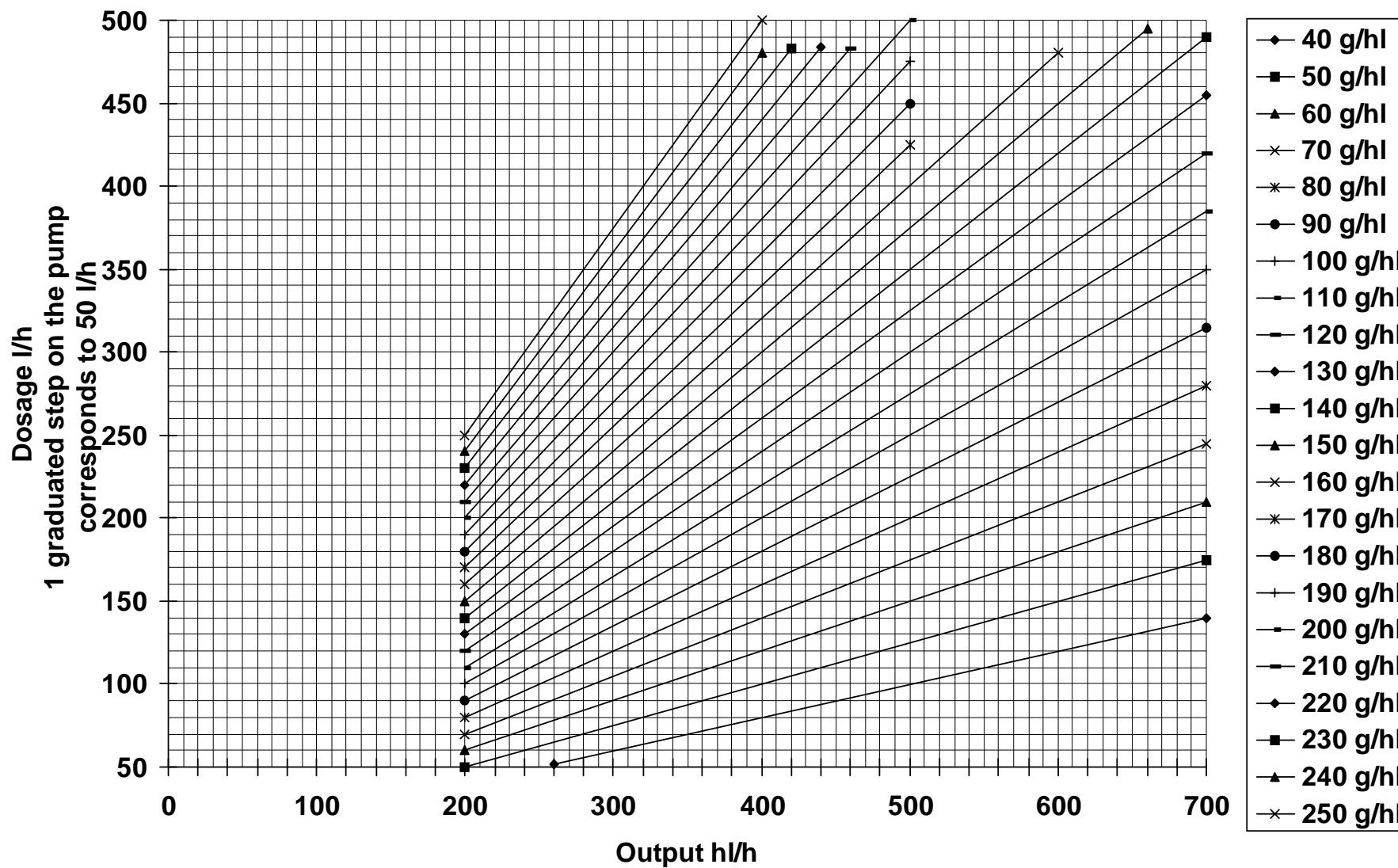
Dosage diagram 400 l/h Mixing ratio 1:10



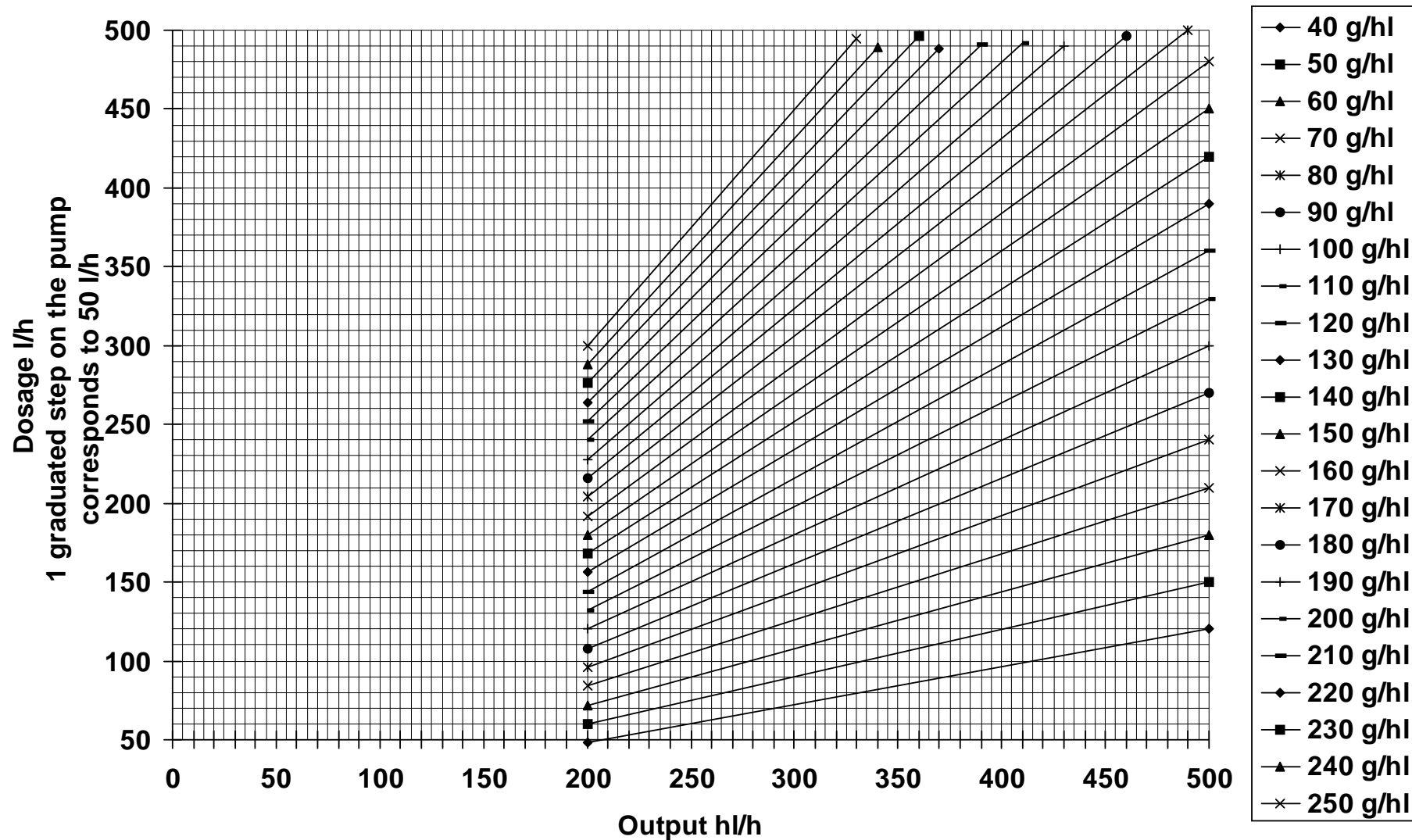
Dosage diagram 400 l/h Mixing ratio 1:12



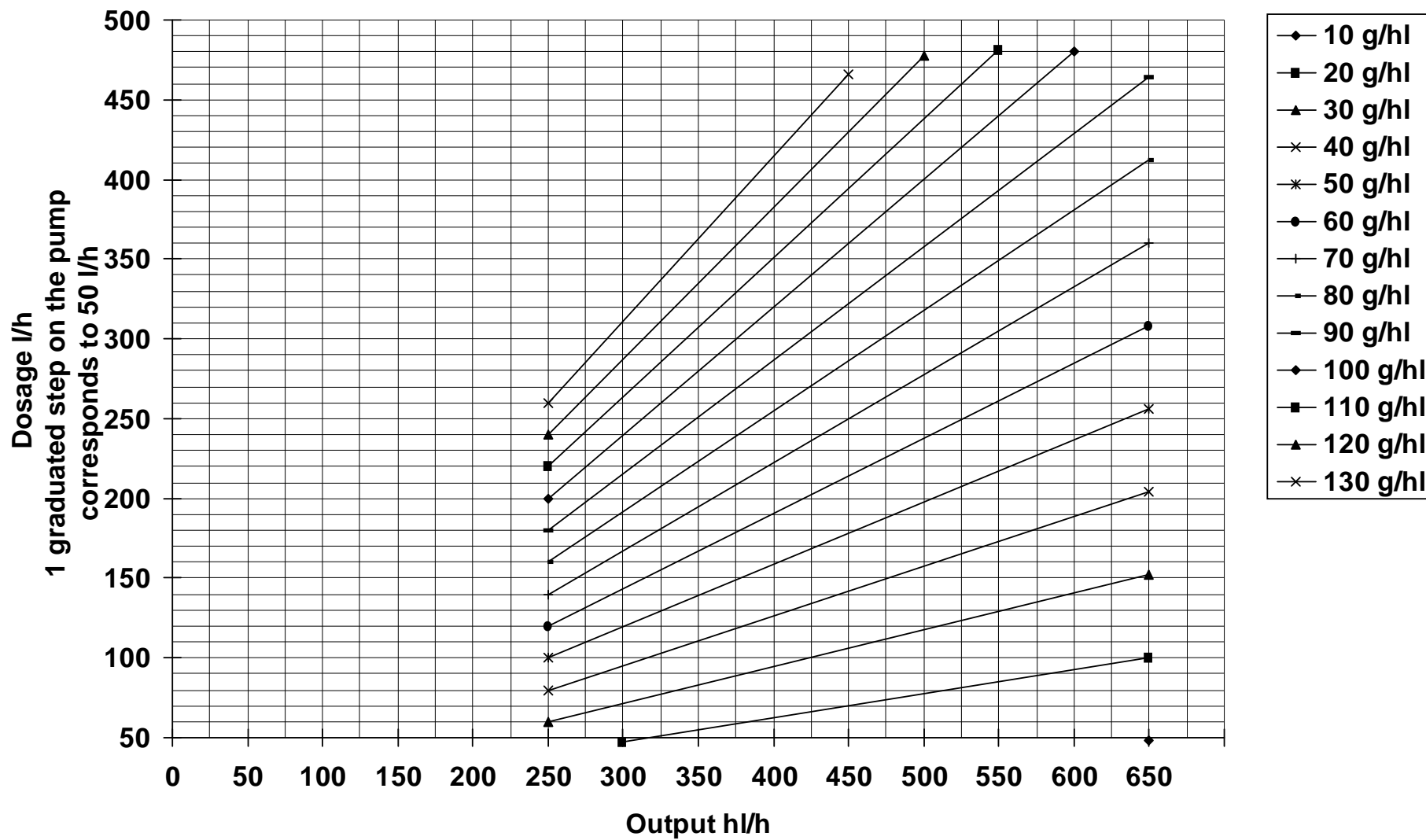
Dosage diagram 500 l/h Mixing ratio 1:5



Dosage diagram 500 l/h Mixing ratio 1:6



Dosage diagram 500 l/h Mixing ratio 1:8



Dosage diagram 500 l/h Mixing ratio 1:10

