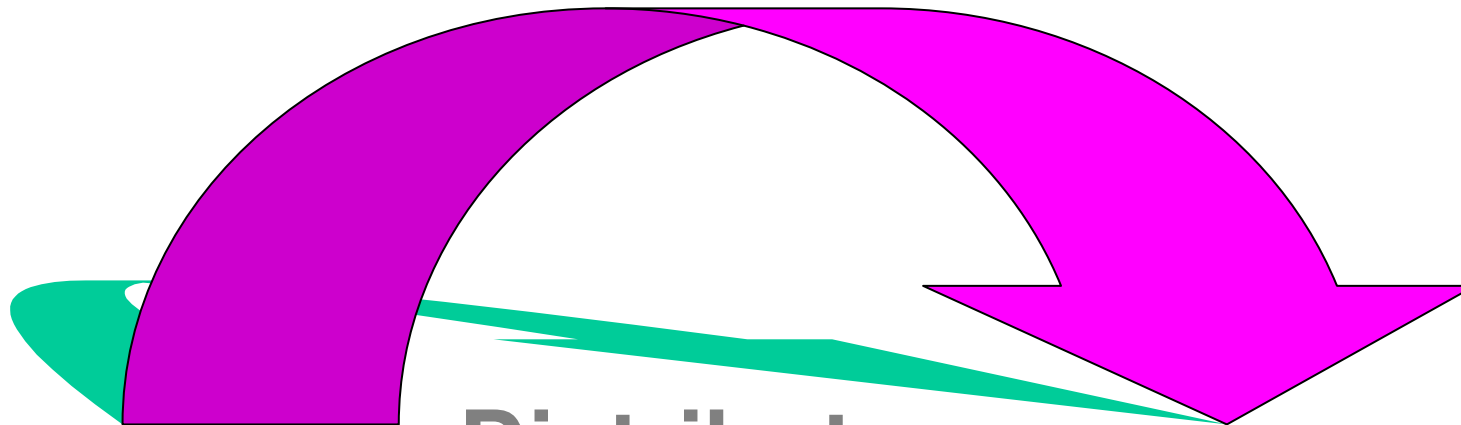


Welcome to LAB 2007 presentation





- Philosophy



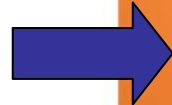
Distributors



Target the end users in the lab

How the advert works!...

The associate
eye catcher

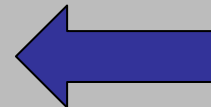


Audio message



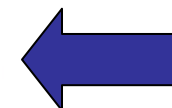
DELIGHTED
NO PUMPS TO FIX

The patented technology inside your KNFLab pump means it will run and run, trouble free. Even so, it comes with local support and service, because one has to expect the unexpected. Like a technician who actually likes pumps. But we're used to that at KNFLab.



Product/Service
message

Asp rational exit
message



www.KNFLab.com



First class pumps for
first class science



Overview- basic laboratory product range

Stand alone pumps

LABOPORT pumps for standard lab applications
LABOPORT full teflon pumps
pumps for vacuum and pressure

LABOPORT vacuum systems

LABOXACT SEM – manually controlled
LABOPORT SC – automatically controlled

LABOBASE vacuum system

LABOBASE SBC for central vacuum supply
up to 6 vacuum supply points

LIQUIPORT

LIQUIPORT corrosion resistant liquid pumps

STEPDOS

STEPDOS metering pump

LABOPORT®

Laboport Standard



LABOPORT®

Laboport Standard



- Small size, small footprint
- Economical price
- Simply design and service
- Long lifetime and good reliability

LABOPORT®

**Laboport
Standard**



First class pumps for
first class science

APPLICATIONS



Vacuum filtration (6 – 37 LPM, 250 – 100 mbar abs.)

N86KN/T.18, N811KN/T.18, N816.1.2KN/T.18, N838.1.2KN/T.18



Aspiration (25 – 40 LPM, 200 – 100 mbar abs.)

N816.1.2KN.18, N838.1.2KN.18



Replacement of water jet pumps (> 10 LPM, < 40 mbar abs.)

N816.3KT.18, N838.3KT.18



First class pumps for
first class science



LABOPORT®

Laboport Standard



First class pumps for
first class science



1L flask



N86KN.18

6L/min. 100 mbar

N86KT.18

5.5 L/min. 160 mbar



2~3L flask



N811KN.18

11.5L/min. 240 mbar

N811KT.18

11.5 L/min. 290 mbar



5l flask



N816.1.2KN.18

30L/min. 100 mbar

N816.1.2KT.18

30 L/min. 160 mbar



5 -15 l flask



N838.1.2.KT.45.18

37L/min. 100 mbar

N838.1.2KN.45.18

37L/min. 150 mbar

LABOPORT®

Laboport Standard

Available also with fine regulation valve with vacuum gauge

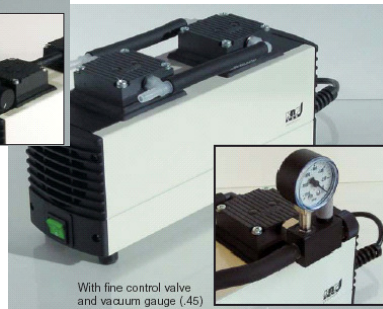


N86/811 models

On request possible



With fine control valve
and vacuum gauge (.45)



With fine control valve
and vacuum gauge (.45)

N816.1.2KN.45.18

N816.1.2KT.45.18

N816.3KN.45.18

N816.3KT.45.18



N838.1.2KN.45.18

N838.1.2KT.45.18

N838.3KN.45.18

N838.3KT.45.18

Laboport Standard



Technical data:

	N 86 KN.18	N 86 KT.18
Delivery (l/min) ¹⁾	6	5.5
Ultimate vacuum (mbar abs.)	100	160
Operating pressure (bar g)	2.4	2.5



Technical data:

	N 811 KN.18	N 811 KT.18
Delivery (l/min) ¹⁾	11.5	11.5
Ultimate vacuum (mbar abs.)	240	290
Operating pressure (bar g)	2	2



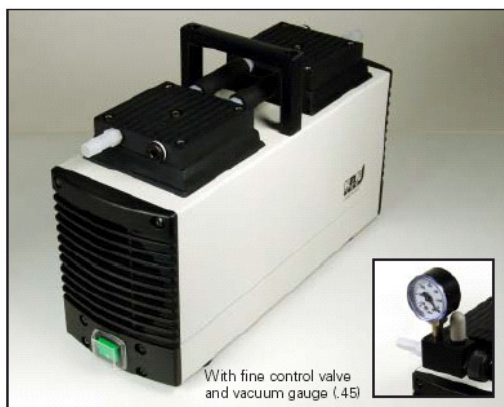
Technical data:

	N 816.3 KN.18	N 816.3 KT.18
Delivery (l/min) ¹⁾	16	16
Ultimate vacuum (mbar abs.)	15	20
Operating pressure (bar g)	0.5	0.5



Technical data:

	N 816.1.2 KN.18	N 816.1.2 KT.18
Delivery (l/min) ¹⁾	30	30
Ultimate vacuum (mbar abs.)	100	160
Operating pressure (bar g)	0.5	0.5



Technical data:	N 838.1.2 KN.18	N 838.1.2 KT.18
	N 838.1.2 KN.45.18	N 838.1.2 KT.45.18
Delivery (l/min) ¹⁾	37	37
Vacuum (mbar abs.)	100	150
Pressure (bar)	0.5	0.5
Connectors for tube (mm)	ID 10	ID 10



Technical Data:	N 838.3 KN.18	N 838.3 KT.18
	N 838.3 KN.45.18	N 838.3 KT.45.18
Delivery (l/min) ¹⁾	22	22
Vacuum (mbar abs.)	12	15
Pressure (bar)	0.5	0.5
Connectors for tube (mm)	ID 10	ID 10

**Laboport
Standard**



First class pumps for
first class science

Laboport
for aggressive
gases

LABOPORT®

Chemical resistant



N840.3

N820.3

N810.3

LABOPORT®

Chemical resistant



N810FT.18 / N810.3FT.18

N820FT.18 / N820.3FT.18

N840FT.18 / N840.3FT.18



N842.3FT.18



N840.1.2FT.18



**N860.3FT.18
on request**

LABOPORT®

Chemical resistant



- Small footprint
- **Universal use** – Chemical resistant
- Very low noise level
- Very long lifetime and high reliability
- High value design

LABOPORT®

Chemical resistant



First class pumps for
first class science

APPLICATIONS



Rotary evaporator (10 - 60 LPM, 10 – 2 mbar abs.)

- Low boiling solvents, 10 mbar abs: N810 – 840.3FT.18 / Systems SC, SEM
- High boiling solvents, 2 mbar abs.: N842.3FT.18 (N860.3FT.18) / Systems SC, SEM



Vacuum concentrators (10 – 34 LPM, 10 – 2 mbar abs.)

- Organic solvents, 10 mbar abs.: N810 – 840.3FT.18
- High boiling solvents, water, 2 mbar abs.: N842.3FT.18



Gel dryers (> 10 LPM, 10 - 2 mbar abs.)

- Common gels, 10 mbar abs.: N810 – 840.3FT.18
- High boiling solvents, 2 mbar abs.: N842.3FT.18

LABOPORT®



First class pumps for
first class science

Chemical resistant



N810.3FT.18
10 L/min. 8mbar
(0.6 m³/hr, 6 torr)



N820.3FT.18
20L/min. 8mbar
(1.2 m³/hr, 6 torr)



N840.3FT.18
34L/min. 8mbar
(2.04 m³/hr, 6torr)



N860.3FT.40.18
60L/min. 4 mbar
(3.6 m³/hr, 3torr)

“LABOPORT” Chemically – Resistant Vacuum Pumps and Compressors



Technical data:	N 810 FT.18	N 810.3 FT.18
Delivery (l/min) ¹⁾	10	10
Ultimate vacuum (mbar abs.)	100	8



Technical data:	N 820 FT.18	N 820.3 FT.18
Delivery (l/min) ¹⁾	20	20
Ultimate vacuum (mbar abs.)	100	8
Operating pressure (bar g)	1	1



Technical data:	N 840 FT.18	N 840.3 FT.18
Delivery (l/min) ¹⁾	34	34
Ultimate vacuum (mbar abs.)	100	8
Operating pressure (bar g)	1	1

“LABOPORT” Chemically – Resistant Vacuum Pumps and Compressors



Technical data: N 842.3 FT.18

Delivery (l/min) ¹⁾	34
Ultimate vacuum (mbar abs.)	2
operating pressure (bar g)	1



Technical data: N 840.1.2 FT.18

Delivery (l/min) ¹⁾	60
Ultimate vacuum (mbar abs.)	90
operating pressure (bar g)	1

Self Drying – Pump “SD”



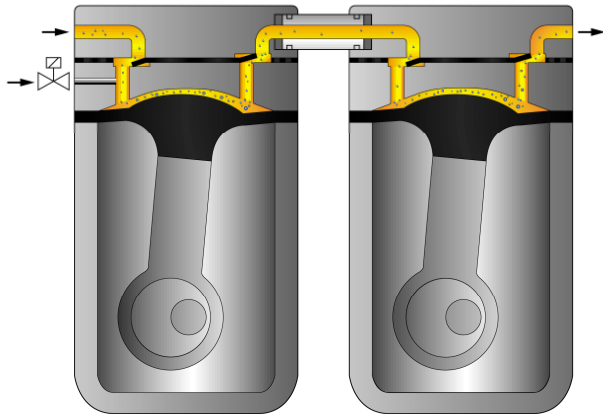
Self Drying – Pump “SD” for humid gases



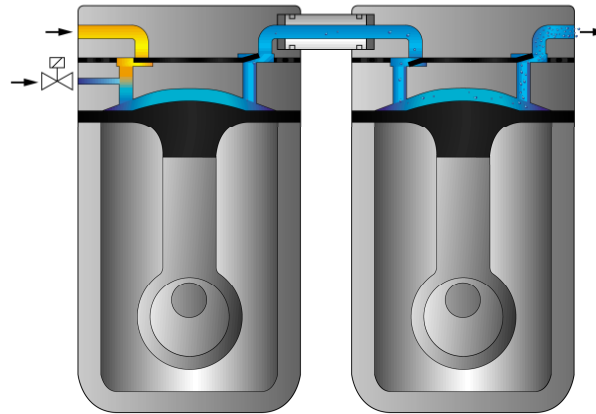
- Continuous process without vacuum loss for humid gases
- Individual drying program
- Vacuum level stay constant
- Lower vacuum with humid gases
- Available also for systems

Patent of KNF

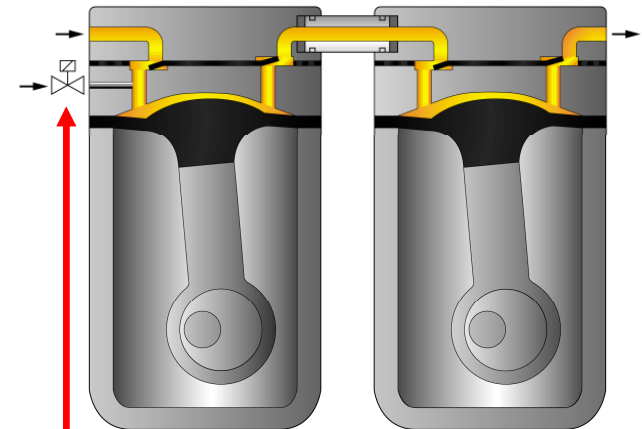
“SD” Self Drying - Pump



Humid gas enter to pump and condensate in the pump heads. Capacity is going down.

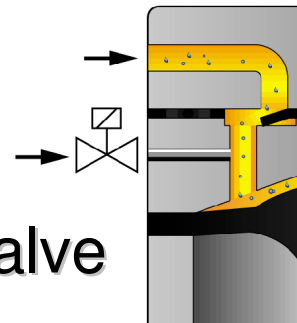


Condensate will be blown out without vacuum loss



Pump heads are dry and pump has full capacity

Ventilations valve



“SD” Self Drying - Pump

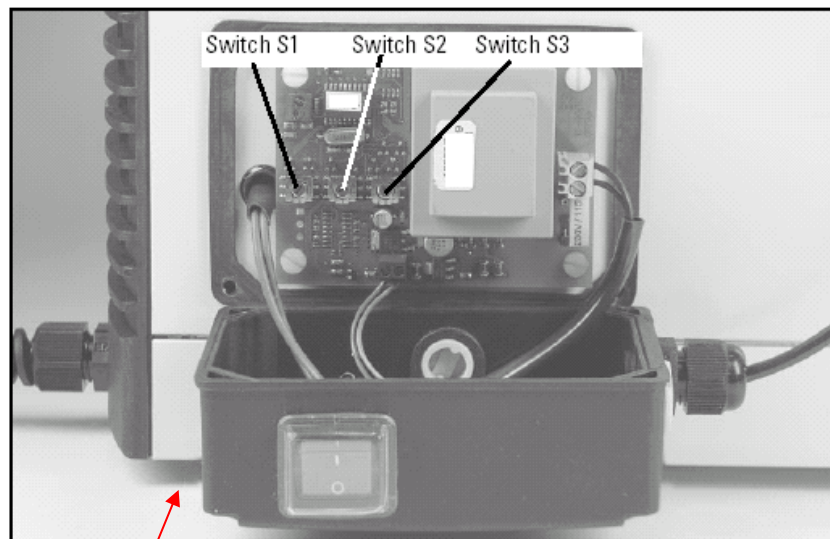


Fig. 5:
Control box (opened) of drying system with switches S1, S2, S3

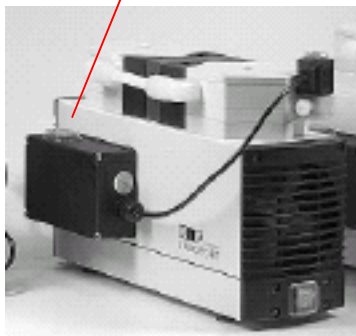
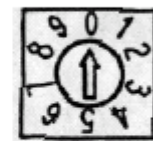


Table 1: Drying system control box: Variables and values

- t_1 :
Time between switching on the drying system and the first ventilation of the pump heads.
- t_2 :
Duration of the ventilation of the pump heads.
- t_3 :
The interval between pump head ventilation operations.



Switch

Switch setting	Switch 1: t_1 in sec	Switch 2 t_2 in sec	Switch 3 t_3 in sec
0	t_3	1.0	10
1	60	1.5	15
2	90	2.0	25
3	120	2.5	40
4	150	3.0	60
5	180	3.5	120
6	210	4.0	180
7	240	5.0	300
8	300	7.5	600
9	360	10.0	900

Works setting:

Switch	Switch setting	Time in sec
1	6	210
2	2	2.0
3	3	40

LABOPORT®

“SD”



N820.3FT.40.18

N840.3FT.40.18



N842.3FT.40.18



N860.3FT.40.18

LABOPORT® “SD”



up to 15 L



N820.3FT.40.18



up to 30 L



N840.3FT.40.18

N842.3FT.40.18



up to 50 L



N860.3FT.40.18

“LABOPORT SD” Chemically – Resistant Self Drying Vacuum Pumps and Compressors



Technical data: **N 820.3 FT.40.18**

Delivery (l/min) ¹⁾	20
Ultimate vacuum (mbar abs.)	10
Operating pressure (bar g)	1



Technical data: **N 840.3 FT.40.18**

Delivery (l/min) ¹⁾	34
Ultimate vacuum (mbar abs.)	10
Operating pressure (bar g)	1



Technical data: **N 842.3 FT.40.18**

Delivery (l/min) ¹⁾	34
Ultimate vacuum (mbar abs.)	4
Operating pressure (bar g)	1



Technical data: **N 860.3 FT.40.18**

Delivery (l/min) ¹⁾	60
Ultimate vacuum (mbar abs.)	4
Operating pressure (bar g)	1



Portable
Vacuum pumps &
Compressors



Portable Vacuum pumps & Compressors

Technical data: N 022 AN.18 N 022 AT.18

Delivery (l/min) ¹⁾	15	13
Ultimate vacuum (mbar abs.)	100	100
Operating pressure (bar g)	4	4



Technical data: N 026.3 AN.18 N 026.3 AT.18

Delivery (l/min) ¹⁾	22	18
Ultimate vacuum (mbar abs.)	20	25
Operating pressure (bar g)	-	-



Technical data: N 026.1.2 AN.18 N 026.1.2 AT.18

Delivery (l/min) ¹⁾	39	31
Ultimate vacuum (mbar abs.)	100	100
Operating pressure (bar g)	2	2

N 035 AN.18 N 035 AN.18 IP 20-Motor IP 44-Motor

Delivery (l/min) ¹⁾	30	30
Ultimate vacuum (mbar abs.)	100	100
Operating pressure (bar g)	4	4

N 035 AT.18 N 035 AT.18 IP 20-Motor IP 44-Motor

Delivery (l/min) ¹⁾	27	27
Ultimate vacuum (mbar abs.)	100	100
Operating pressure (bar g)	4	4



	N 035.3 AN.18 IP 20-Motor	N 035.3 AN.18 IP 44-Motor
Delivery (l/min) ¹⁾	30	30
Ultimate vacuum (mbar abs.)	13	13
Operating pressure (bar g)	-	-

	N 035.3 AT.18 IP 20-Motor	N 035.3 AT.18 IP 44-Motor
Delivery (l/min) ¹⁾	27	27
Ultimate vacuum (mbar abs.)	20	20
Operating pressure (bar g)	-	-



	N 035.1.2 AN.18 IP 20-Motor	N 035.1.2 AN.18 IP 44-Motor
Delivery (l/min) ¹⁾	55	55
Ultimate vacuum (mbar abs.)	100	100
Operating pressure (bar g)	4	4

	N 035.1.2 AT.18 IP 20-Motor	N 035.1.2 AT.18 IP 44-Motor
Delivery (l/min) ¹⁾	50	50
Ultimate vacuum (mbar abs.)	100	100
Operating pressure (bar g)	4	4



Technical data: N 145 AN.18 N 145 AT.18

Delivery (l/min) ¹⁾	30	27
Ultimate vacuum (mbar abs.)	100	100
Operating pressure (bar g)	7	7



Technical data: N 145.1.2 AN.18 N 145.1.2 AT.18

Delivery (l/min) ¹⁾	55	50
Ultimate vacuum (mbar abs.)	100	100
Operating pressure (bar g)	7	7



**Portable
Vacuum pumps &
Compressors**

N 920

Patent of KNF



- New diaphragm stabilization system
< 1,5 mbar abs.
- All world voltages and frequency
with one pump
- Motor speed / flow control with
a potentiometer

N 920

Patent of KNF



New diaphragm stabilization system

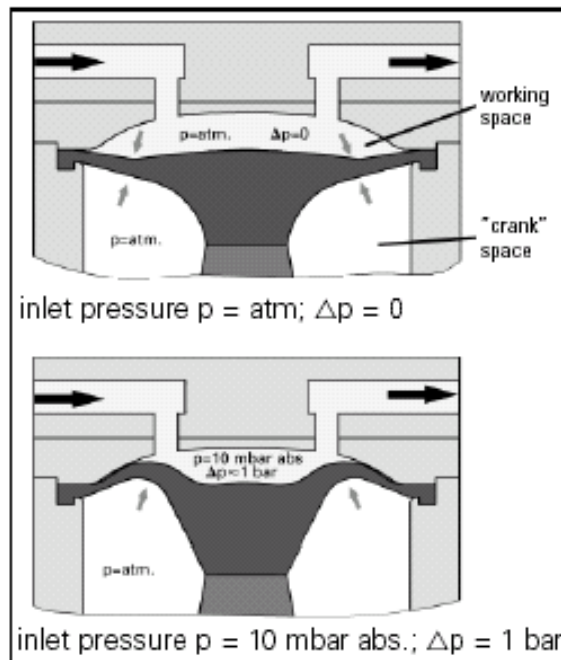


Fig. 1: Diaphragm behavior, due to the pressure difference between working space and "crank" space (normal diaphragm pump)

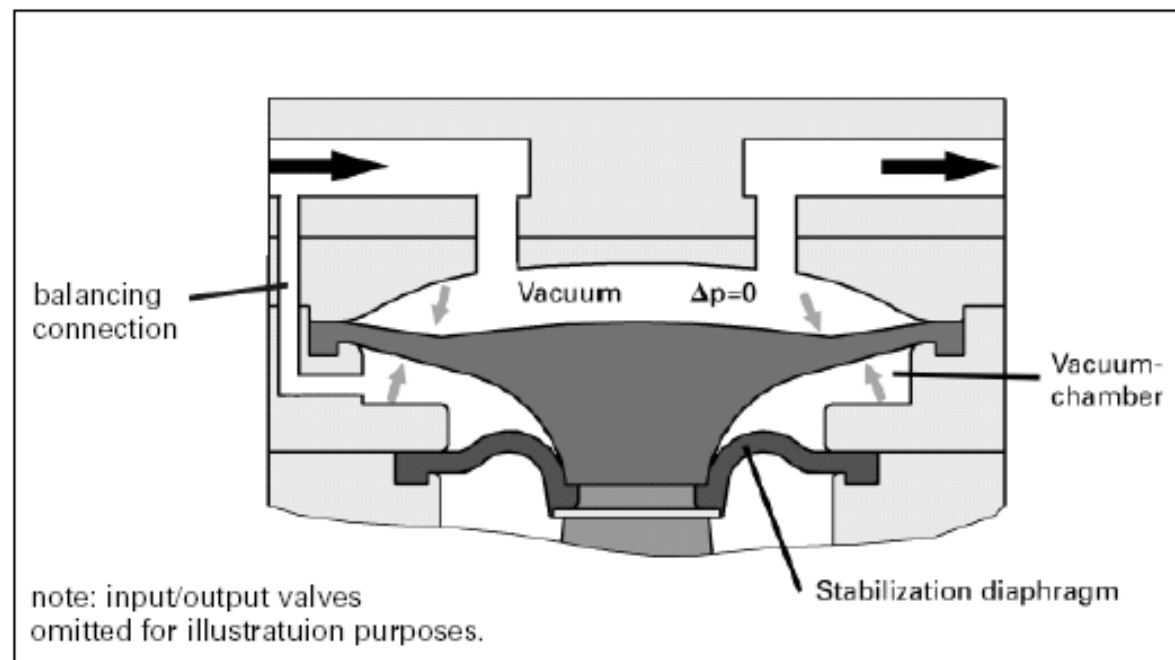


Fig. 2: Diaphragm stabilization system with additional diaphragm. This improves the suction speed of the pump significantly, over its entire working range.

N 920

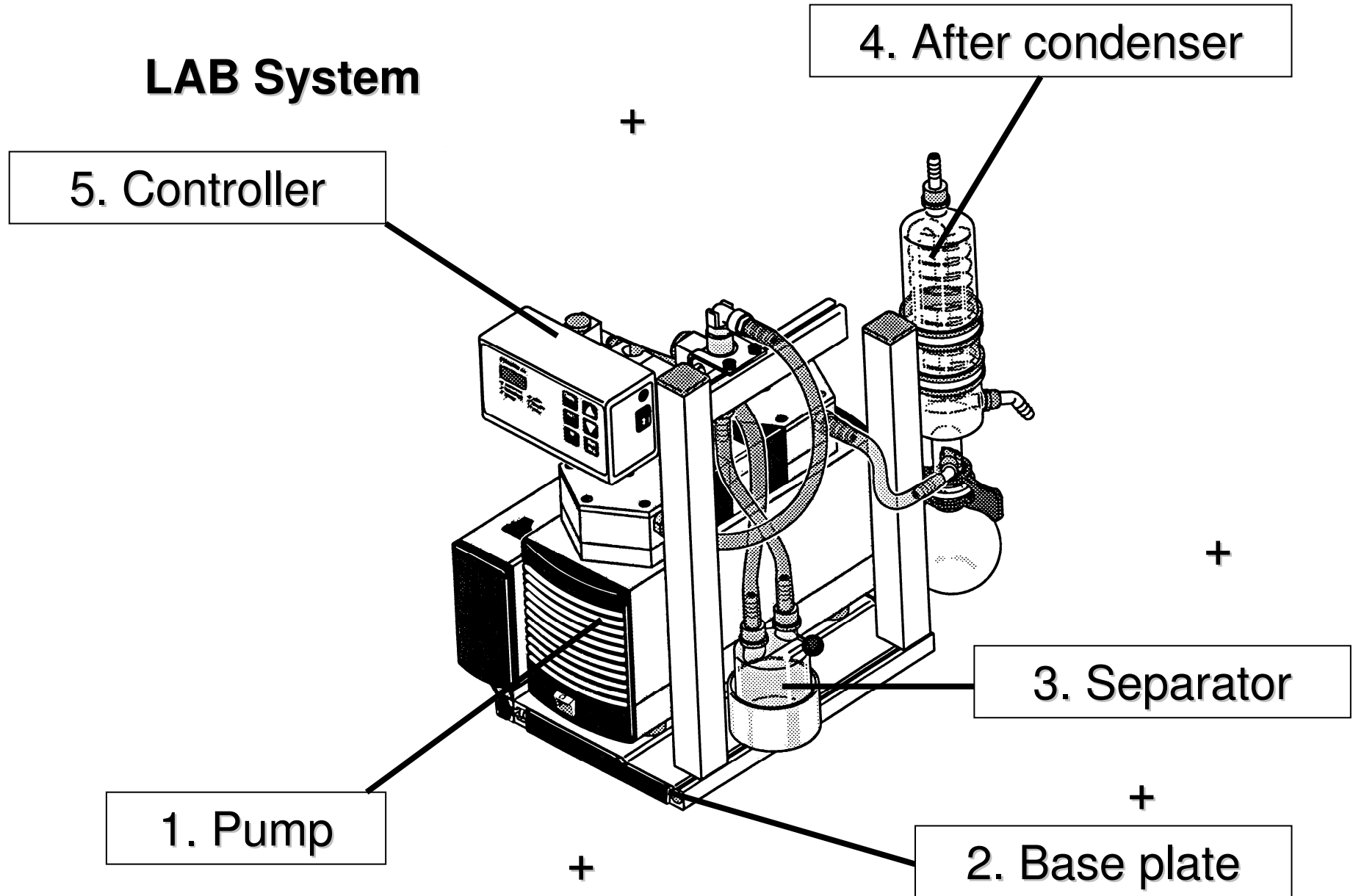


Technical data:	N 920 AP.29.18	N 920 KT.29.18
Delivery (l/min) ¹⁾	max. 21	max. 20
Ultimate vacuum (mbar abs.)	1.5	2.0
Operating pressure (bar g)	0.5	0.5
Connectors for tube (mm)	ID 9	ID 9
Permissible gas and ambient temperature	+5...+40 °C	+5...+40 °C
Mains	90-230 V / 50-60 Hz	
Motor protection	IP 20	IP 20
Power P ₁	120 W	135 W
Operating current	1.3 A	1.4 A
Weight	10.5 kg	8.6 kg
Dimensions LxHxW (mm)	324/226/158	324/226/158
With thermal switch		

LABOPORT vacuum systems



LAB System





SC -System

- Automatically vacuum regulation of the process through the electronic vacuum controller
- SCC-System: with two controllers for two separate running processes
- Chemically resist

Controller – Standard mode

MAN - Mode

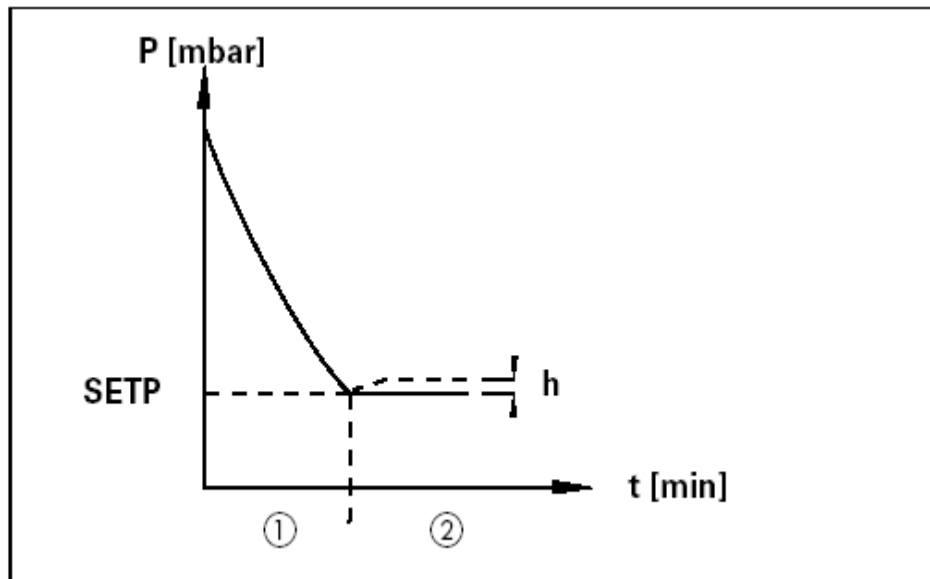


Fig. 3: Controlling profile in manual mode 1

SETP = Pressure set point 1-999 mbar

h = hysteric 1 – 100 mbar

AUT - Mode

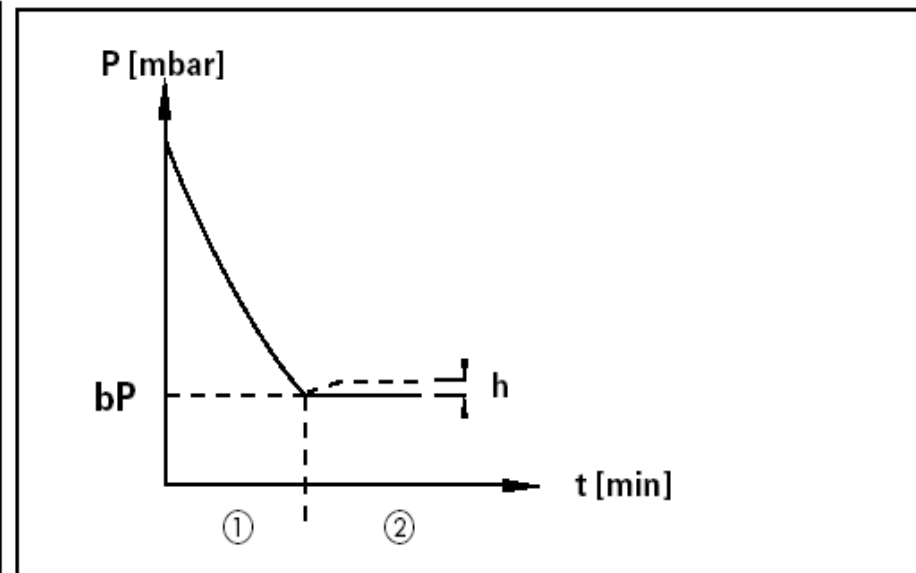


Fig. 6: Controlling profile in automatic mode: Pressure differential

bB = automatically if **bP** < 600 mbar

h = hysteric 1 – 100 mbar

Controller – Soft set point start

MAN - Mode

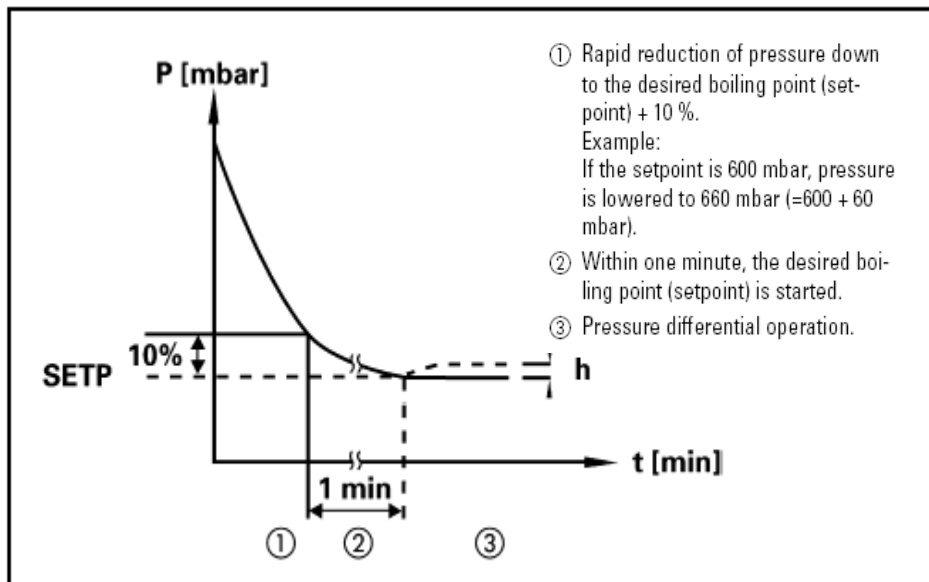


Fig. 4: Controlling profile in manual mode 2: with soft setpoint start

SET = Pressure set point 1-999 mbar

h = hysteresis 1 – 100 mbar

AUT - Mode

Not available in
AUT - Mode

Controller – Controlled pressure reduction

MAN - Mode

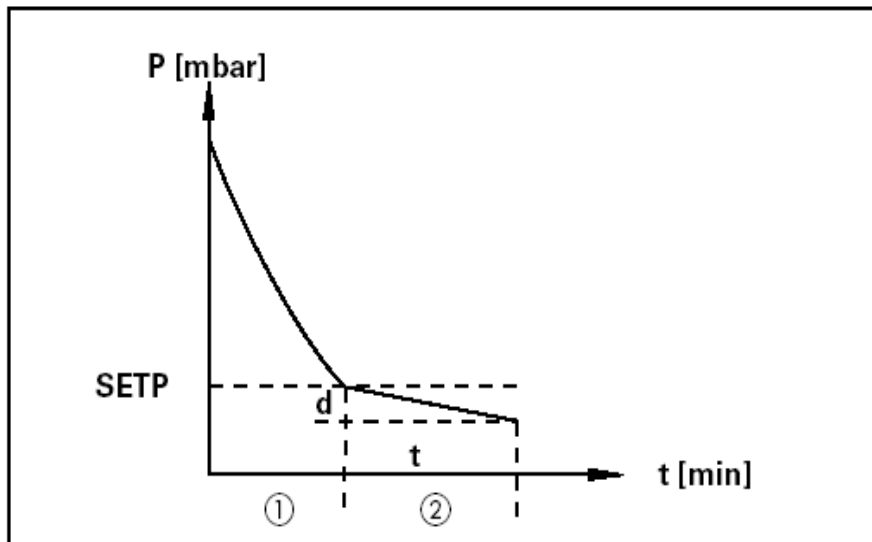


Fig. 5: Controlling profile in manual mode: Controlled pressure reduction

SET = Pressure set point 1-999 mbar
h = hysteresis 1 – 100 mbar
d = pressure reduction 0 – 100 mbar
t = post distillation time tOFF – 99 min

AUTO - Mode

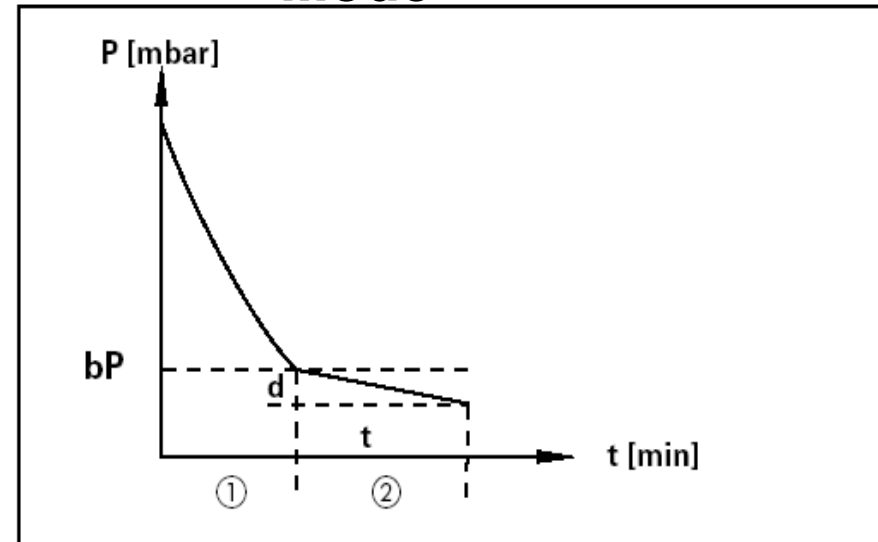


Fig. 7: Controlling profile in automatic mode: Controlled pressure reduction

bB = automatically if $bP < 600$ mbar
h = hysteresis 1 – 100 mbar
d = pressure reduction 0 – 100 mbar
t = post distillation time tOFF – 99 min

LABOXACT®

- Manually vacuum regulation thought fine control valve
- Ventilations valve for fast ventilation of the system
- Connection for inert gas
- Chemically resist





SH –System

- Chemically resist vacuum pump
- Separator on inlet and after condenser on outlet
- Assembled on the base plate

SR-System



- Chemically resist
vacuum pump

- Separator on inlet
and outlet

- Assembled on the
base plate



LABOBASE

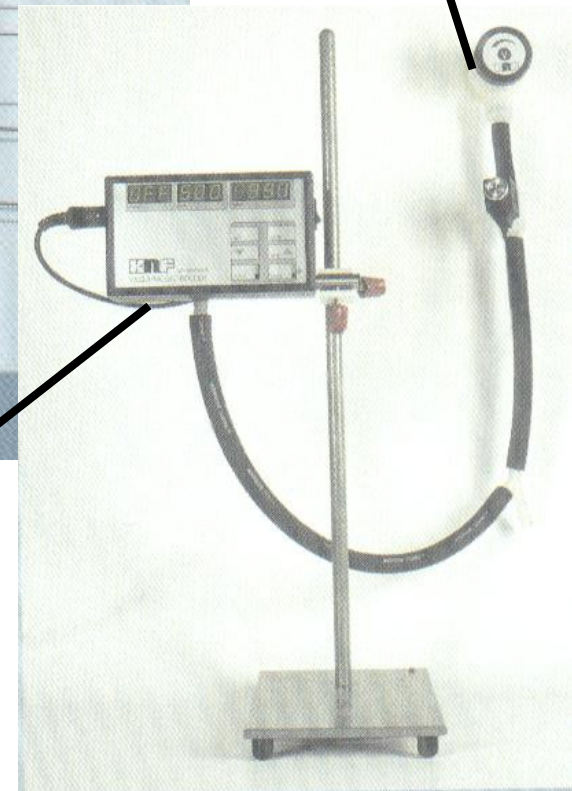
- Vacuum system for multi user network
- Automatically regulated network vacuum level
- Chemically resist



Vacuum
Supply Point



Portable
Controller



Typical LAB - Applications:

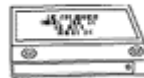
Vacuum concentration



Vacuum filtration and sample preparation



Gel drying



Vacuum drying



Vacuum evaporating



Aspiration



Solvent degassing



Very service friendly
construction



First class pumps for
first class science

LABOPORT®

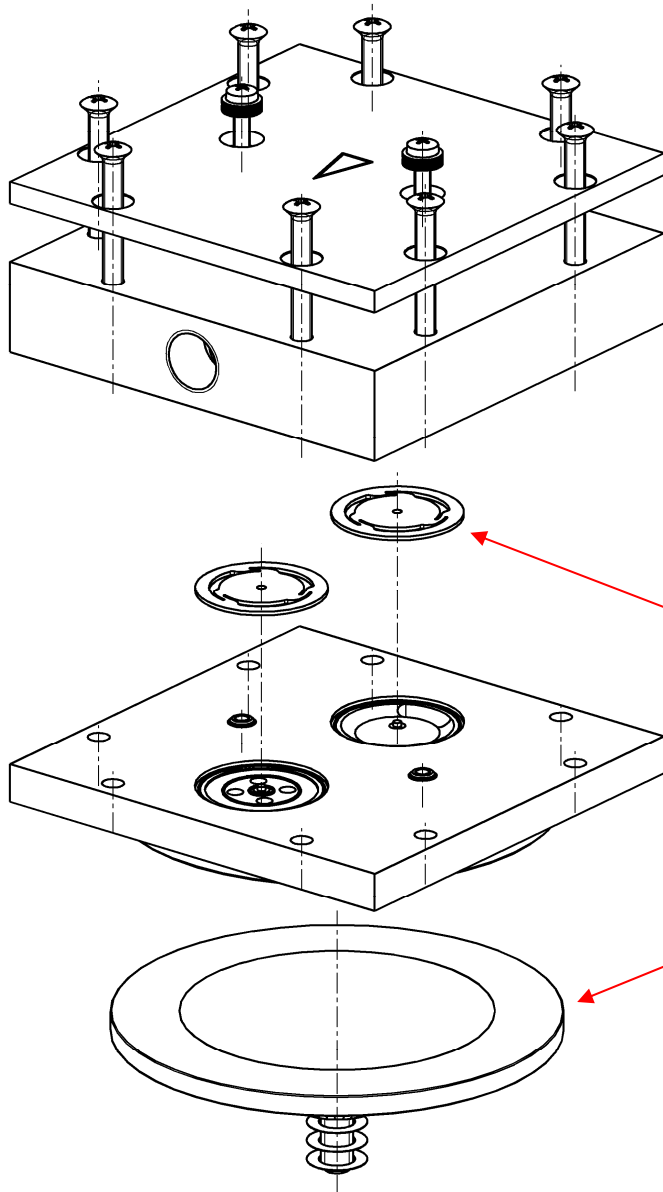
**Laboport
Standard**

Wear parts can be replaced in few
minutes

Without special tools

Valve plate - sealing

Structured diaphragm



Ware parts



First class pumps for
first class science

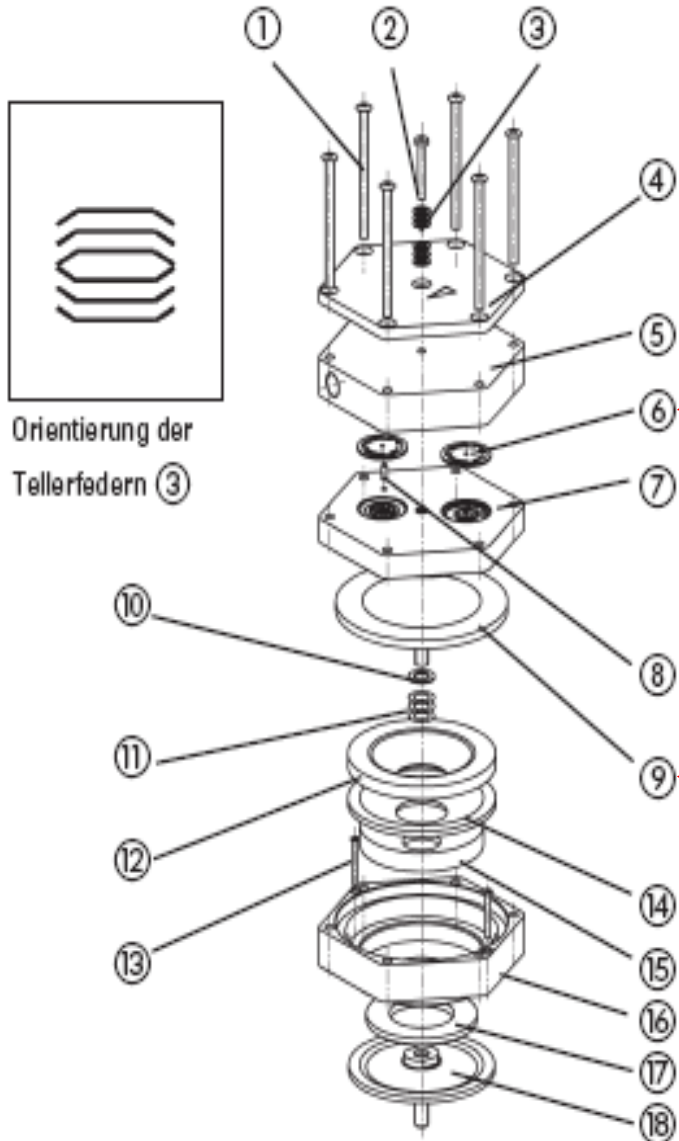
LABOPORT®

Chemical resistant

Valve plate - sealing

Detail maintenance instruction you
can find out from maintenance
manual

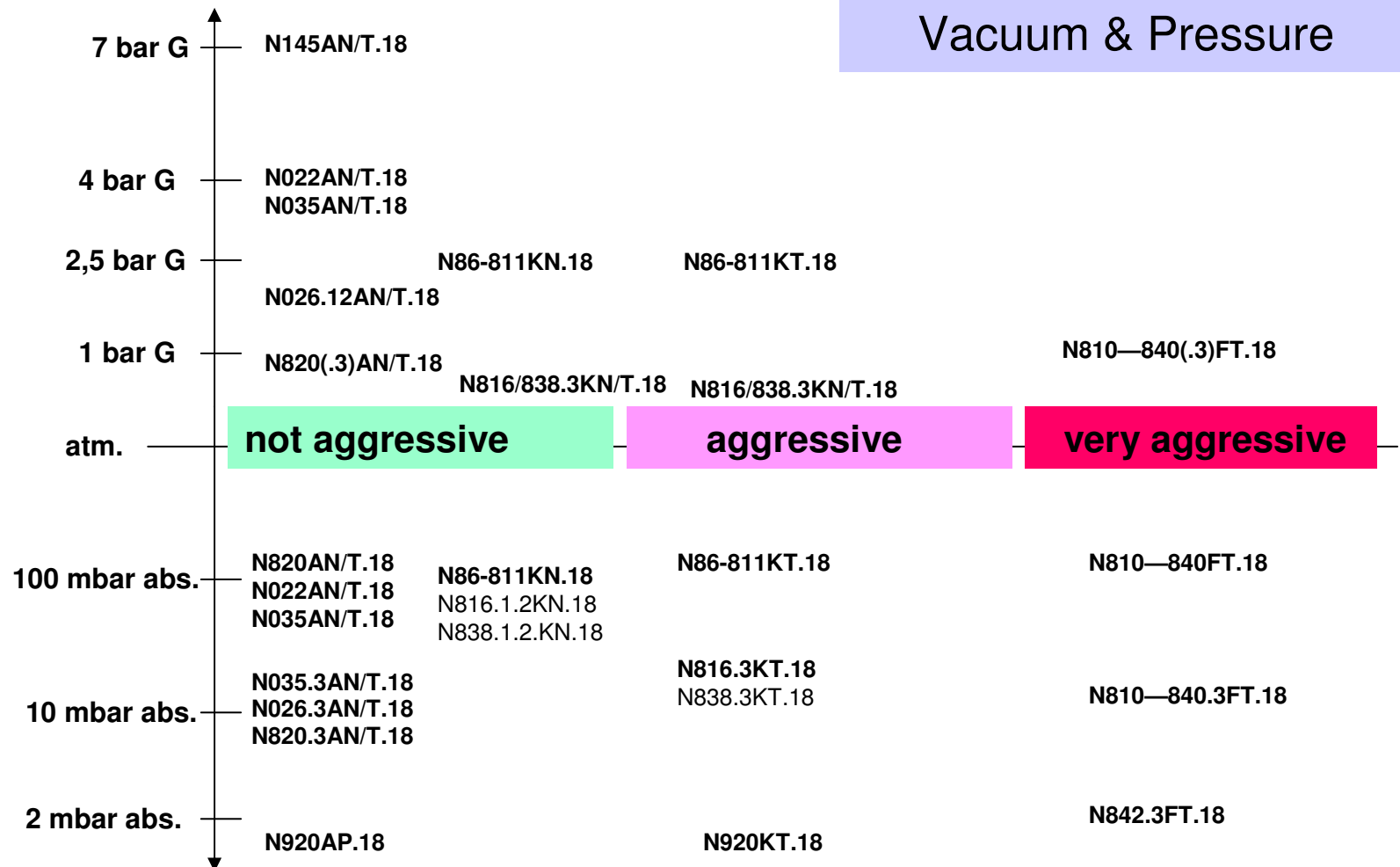
Structured diaphragm



Bei Pumpe N 842__ ist die Kopfform rund statt sechseckig.

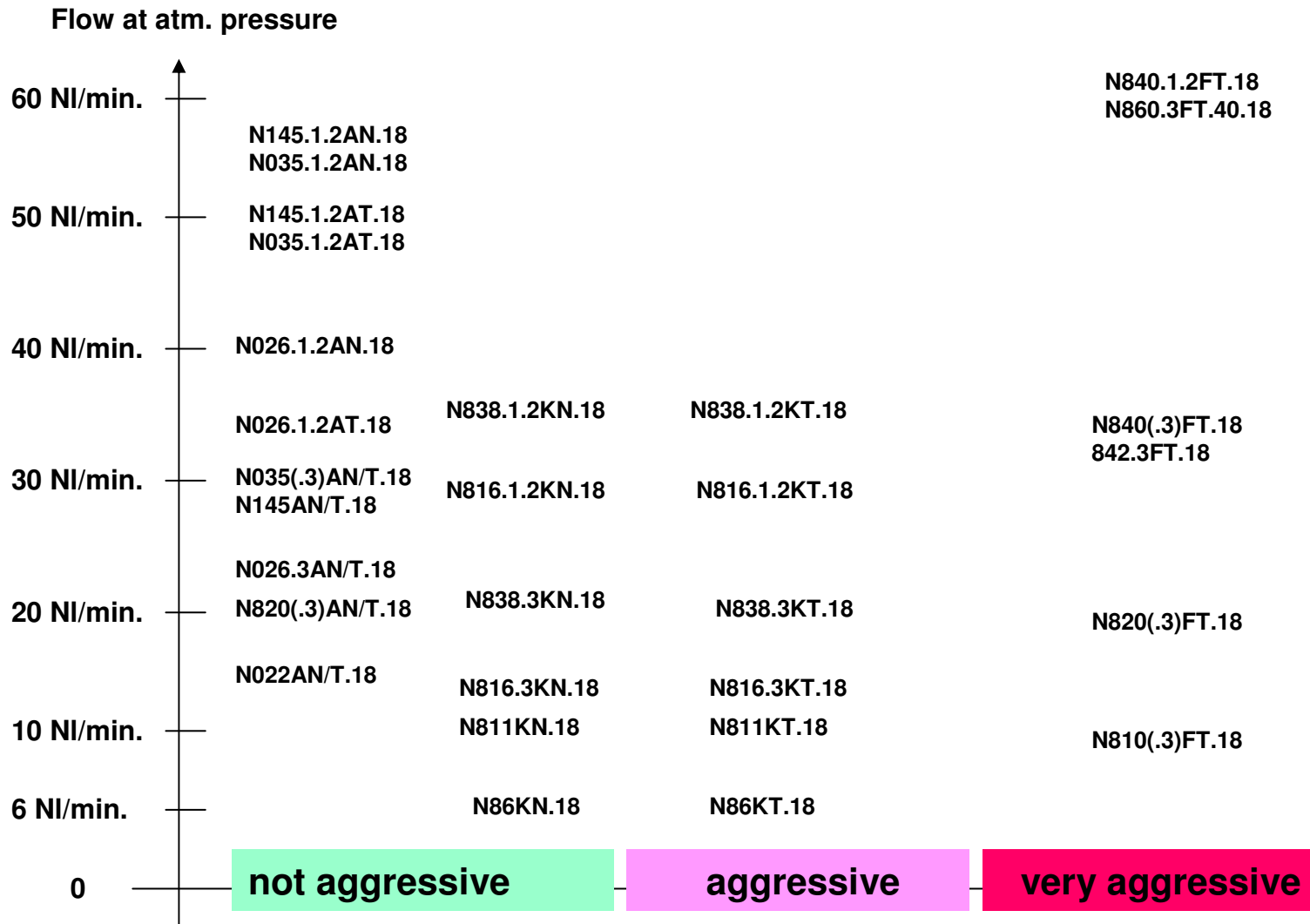
KNF – LAB Map

Find according to
Vacuum & Pressure



KNF – LAB Map

Find according to flow rate



**Thank you very much for
your attention**

