

Pressure Booster System

DeltaCompact

DeltaSolo Compact MVP
DeltaBasic Compact MVP

Type Series Booklet



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Type Series Booklet DeltaCompact

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Building Services: Water Supply

Pressure Booster Systems

DeltaSolo/Basic Compact



DeltaSolo Compact MVP

DeltaBasic Compact MVP

Main applications

- Spray irrigation systems
- General irrigation systems
- Service water supply systems
- Domestic water supply
- Rainwater harvesting
- Water supply systems

Fluids handled

- Drinking water
- Service water
- Cooling water
- Fluids not chemically or mechanically aggressive to the materials

Operating data

Table 1: Operating properties

Characteristic	Value	
Flow rate	Q [m ³ /h]	≤ 18 ¹⁾
	Q [l/s]	≤ 5
Head	H [m]	≤ 55
Fluid temperature	T _{min.} [°C]	≥ 0
	T _{max.} [°C]	≤ +40
Operating pressure	p [bar]	≤ 10
Inlet pressure	p _{inl.} [bar]	4 - 5,5 ²⁾
Motor rating	P [kW]	1,50

¹ Without stand-by pump

² The inlet pressure depends on the pump size.

Design details

Design

- Fully automatic pressure booster system
- Variable speed operation
- Baseplate-mounted
- Membrane-type accumulator (direct-flow) to DIN 4807-5 on the discharge side, approved for drinking water, with shut-off element and drain valve.
- One or two horizontal high-pressure pumps with variable speed system
- Hydraulic components made of stainless steel / brass
- Lift check valve for each pump
- Pressure gauge
- Integrated dry running protection
- Pressure transmitter on the discharge side
- Anti-vibration pads per system

DeltaBasic Compact:

- Discharge-side gate valve per pump
- Suction side ball valve or shut-off butterfly valve per pump
- Suction-side manifold and discharge-side manifold made of stainless steel

Installation

- Stationary dry installation

Drive

- Electric motor
- Enclosure IP55
- Efficiency class IE3 to IEC 60034-30 (≥ 0.75 kW)

Automation

- One frequency inverter per pump
- Motor protection switch per pump
- Fuse box

Designation
Table 2: Designation example

Position																									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
K	D	B		S	V	P	2	-	0	1	0	/	1	1	0	M	5	A	1	1		/	0	0	0
K	D	C		M	V	P	2	-	0	0	2	/	1	4	0	M	5	A	0	1	0	/	0	0	0
K	D	M		S	V	P	4	-	0	4	0	/	0	3	0	M	5	A	1	1		/	0	0	0
K	D	P		-	V	C	3	-	0	1	5	/	0	8	0	M	5	S	3	1		/	1	0	0
K	D	S		M	V	P	1	-	0	0	4	/	1	2	0	M	5	S	3	1		/	0	0	0

See data sheet

Table 3: Designation key

Position	Code	Description
1-3	Type series	
	KDB	DeltaBasic
	KDC	DeltaSolo Compact / DeltaBasic Compact
	KDM	DeltaMacro
	KDP	DeltaPrimo
KDS	DeltaSolo	
5-7	Type of control	
	-F-	Fixed speed pumps
	-VC	Frequency inverter for variable speed operation, cabinet-mounted frequency inverter
	MVP	Frequency inverter for variable speed operation (Nastec Mida), motor-mounted frequency inverter, intelligent control of system by frequency inverter
SVP	Frequency inverter per pump (PumpDrive 2 Eco / PumpDrive 2) at the motor	
8	Number of pumps	
	1	1 pump
	2	2 pumps
	3	3 pumps
	4	4 pumps
	5	5 pumps
6	6 pumps	
10-12	Pump size	
	002	Movitec 2
	004	Movitec 4
	006	Movitec 6
	010	Movitec 10
	015	Movitec 15
	025	Movitec 25
	040	Movitec 40
	060	Movitec 60
	090	Movitec 90
	125	Movitec 125
C02	Comeo 2	
C04	Comeo 4	
C06	Comeo 6	
14-15	Number of pump stages	
	01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 26, 28, 30	
16	Impeller design	
	0	No trimmed impeller
	1	1 trimmed impeller
	2	2 trimmed impellers
	L	Impeller for low NPSH value
	R	1 trimmed L-version impeller ³⁾
S	2 trimmed L-version impellers ³⁾	

³ L-version impeller = design for low NPSH values

Position	Code	Description
17	Inlet conditions	
	M	Inlet side of pressure booster system connected to the municipal water supply, suction head operation
	F	Pressure booster system with break tank arranged on same level as pump, suction head operation
	L	Pressure booster system with break tank arranged at a lower level, suction lift operation
18	Frequency [Hz]	
	5	50 Hz
	6	60 Hz
19	Drive	
	A	Asynchronous motor (IEC), standard
	S	KSB SuPremE
20	Frequency inverter design	
	0	Fixed speed
	1	Nastec Mida
	2	Danfoss Mididrive (FC280)
	3	PumpDrive 2 Eco
	4	PumpDrive 2
21	Control system design	
	0	Integrated in drive
	1	KSB BoosterCommand Pro
22	Dry running protection (RDP) design	
	0	Cos Phi
	1	Pressure switch
	2	Pressure switch with pressure gauge
	3	Pressure transmitters
	4	Pressure transmitter with pressure gauge
24	Connection type	
	0	C × T (cap x thread)
	1	C × F (cap x flange)
	2	F × F (blind flange x flange)
25	Control cabinet design	
	0	No optional equipment
	1	With optional equipment
26	Design	
	0	Standard design
	1/2	Special design

Configuration and function

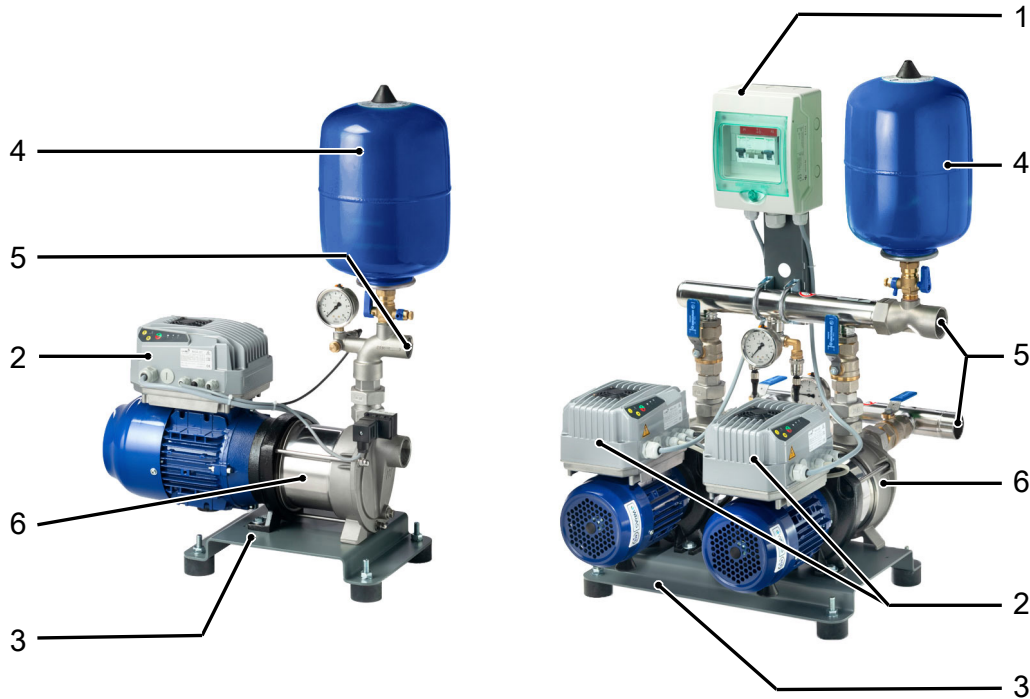


Fig. 1: Design DeltaSolo Compact MVP, DeltaBasic Compact MVP

1	Fuse box	4	Membrane-type accumulator
2	Frequency inverter	5	Connections
3	Baseplate	6	Pump

Design

The fully automatic pressure booster system pumps the fluid to the consumer installations in the set pressure range using one or two non-self-priming horizontal high-pressure pumps (6).

Function

Automatic mode

The pump is controlled and monitored by a motor-mounted frequency inverter.

The standard setting is for the pressure booster system to start automatically as a function of pressure; the actual pressure is measured by an analog pressure transmitter.

The use of this variable speed pump significantly reduces wear as well as the frequency of pump starts in parallel operation. If the demand drops towards 0, the pressure booster system slowly runs down to the stop point and stops.

The pressure booster system is designed with dry running protection.

If the pump has not been in operation for 24 hours, a test run is initiated.

Function

Manual mode

In manual mode, a minimum flow is required to protect the pump against overheating.

Materials

Table 4: Overview of available materials

Part No. (⇒ Page 15)	Description	Material
101	Pump casing	1.4308
10-6	Pump shroud	1.4301
200	Hydraulic system	1.4301
412	Elastomer	EPDM
433	Mechanical seal	To EN 12756
591	Membrane-type accumulator, connection	1.4401
742	Swing check valve	POM (polyoxymethylene)
743	Ball valve	Brass, nickel-coated
890	Baseplate	Steel, powder-coated
-	Membrane	Approved for drinking water

Product benefits

- Plug-and-play design for straightforward commissioning
- Very compact, space-saving design
- Energy-efficient operation and constant pressure ensured by speed control of all pumps.
- Corrosion resistance provided by powder-coated materials and stainless steel
- Integral dry running protection for reliable operation

Solution:

1. Subtract the inlet pressure of 1 bar (approx. 10 m) from the head.
⇒ This results in a required head of 40 m.
 2. Transfer the values to the characteristic curves diagram to select the corresponding pump.
- ⇒ This results in the selection of a DeltaSolo Compact MVP 1/0406.



Product information

Product information as per Regulation No. 1907/2006 (REACH)


For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see <https://www.ksb.com/en-global/company/corporate-responsibility/reach>.

Certifications

Table 5: Overview

Label	Effective in:	Comment
	France	Approved in accordance with the French drinking water regulation
	United Kingdom	Approved in accordance with the UK drinking water regulation

Globe valves and swing check valve:

	Germany	Approved in accordance with the German drinking water regulation
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Selection information

Selection example

Requirements:

Required duty point:

- Flow rate: 4 m³/h
- Head: 50 m
- Inlet pressure: 1 bar

Technical Data
DeltaSolo Compact MVP

MVP = variable speed pressure booster system

 $1 \times 230 \text{ V} \pm 10 \%$

Dry running protection = via power factor, external contact (standard) and pressure switch (optional)

Table 6: 50 Hz

DeltaSolo Compact	With pressure switch	Number of pumps	Comeco C	Number of stages	DN1	DN2	P _N [kW]	Efficiency class	I _N [A]	Frequency of starts [x/h]	I _{min} Overcurrent protection [A]	I _{max} Overcurrent protection [A]	Sound pressure level [dB(A)]	Enclosure	PN	Mat. No.	[kg]
MVP	-	1	02	02	G 1 1/4	G 1	0,37	IE2	4,5	20	4,5	-	58	IP54	10	48281225	28,216
MVP	-	1	02	04	G 1 1/4	G 1	0,37	IE2	4,5	20	4,5	-	58	IP54	10	48281226	28,692
MVP	-	1	02	06	G 1 1/4	G 1	0,55	IE2	4,5	20	4,5	-	58	IP54	10	48278697	30,236
MVP	✗	1	02	06	G 1 1/4	G 1	0,55	IE2	4,5	20	4,5	-	58	IP54	10	48281231	30,425
MVP	-	1	04	02	G 1 1/4	G 1	0,37	IE2	4,5	20	4,5	-	58	IP54	10	48281227	28,23
MVP	-	1	04	04	G 1 1/4	G 1	0,55	IE2	4,5	20	4,5	-	58	IP54	10	48281228	29,524
MVP	-	1	04	06	G 1 1/4	G 1	1,10	IE3	7	25	7	-	60	IP54	10	48278698	36,643
MVP	✗	1	04	06	G 1 1/4	G 1	1,10	IE3	7	25	7	-	60	IP54	10	48281232	36,832
MVP	-	1	06	02	G 1 1/4	G 1	0,37	IE2	4,5	20	4,5	-	58	IP54	10	48281229	29,035
MVP	-	1	06	04	G 1 1/4	G 1	1,10	IE3	7	25	7	-	60	IP54	10	48281230	35,963
MVP	-	1	06	06	G 1 1/4	G 1	1,50	IE3	11	25	11	-	63	IP54	10	48278699	41,782
MVP	✗	1	06	06	G 1 1/4	G 1	1,50	IE3	11	25	11	-	63	IP54	10	48281233	41,971

DeltaBasic Compact MVP

MVP = variable speed pressure booster system

 $3 \times 400 \text{ V} + \text{N} \pm 10 \%$

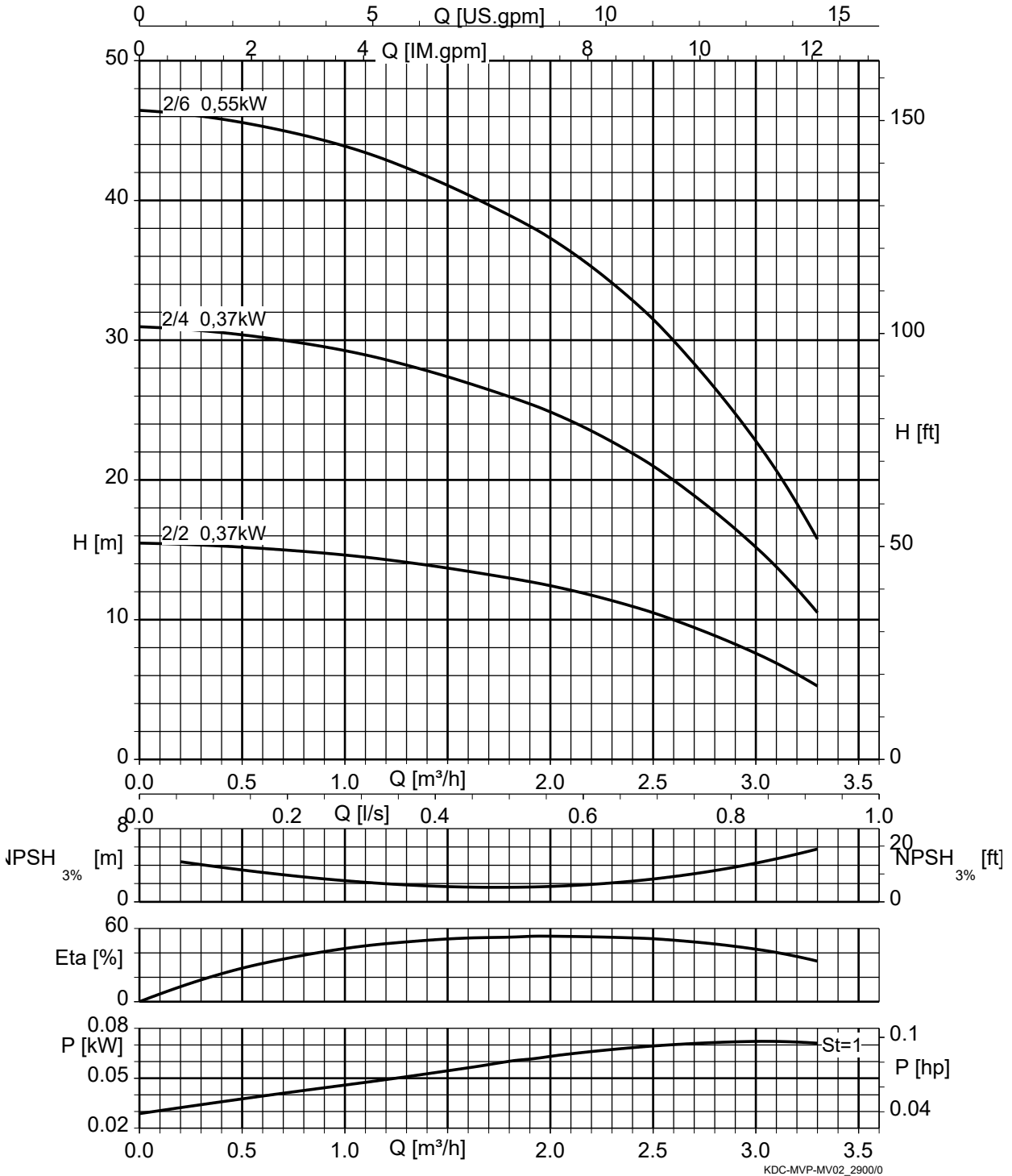
Dry running protection = via power factor, external contact (standard) and pressure switch (optional)

Table 7: 50 Hz

DeltaBasic Compact	With pressure switch	Number of pumps	Comeco C	Number of stages	DN1	DN2	P _N [kW]	Efficiency class	I _N [A]	Frequency of starts [x/h]	I _{min} Overcurrent protection [A]	I _{max} Overcurrent protection [A]	Sound pressure level [dB(A)]	Enclosure	PN	Mat. No.	[kg]
MVP	-	2	02	02	G 1 1/2	G 1 1/2	0,37	IE2	4,5	20	4,5	25	58	IP54	10	48281295	59,582
MVP	-	2	02	04	G 1 1/2	G 1 1/2	0,37	IE2	4,5	20	4,5	25	58	IP54	10	48281296	60,534
MVP	-	2	02	06	G 1 1/2	G 1 1/2	0,55	IE2	4,5	20	4,5	25	58	IP54	10	48278700	63,622
MVP	✗	2	02	06	G 1 1/2	G 1 1/2	0,55	IE2	4,5	20	4,5	25	58	IP54	10	48281301	64,324
MVP	-	2	04	02	G 1 1/2	G 1 1/2	0,37	IE2	4,5	20	4,5	25	58	IP54	10	48281297	59,61
MVP	-	2	04	04	G 1 1/2	G 1 1/2	0,55	IE2	4,5	20	4,5	25	58	IP54	10	48281298	62,198
MVP	-	2	04	06	G 1 1/2	G 1 1/2	1,10	IE3	7	25	7	25	60	IP54	10	48278701	76,436
MVP	✗	2	04	06	G 1 1/2	G 1 1/2	1,10	IE3	7	25	7	25	60	IP54	10	48281302	77,138
MVP	-	2	06	02	G 1 1/2	G 1 1/2	0,37	IE2	4,5	20	4,5	25	58	IP54	10	48281299	61,22
MVP	-	2	06	04	G 1 1/2	G 1 1/2	1,10	IE3	7	25	7	25	60	IP54	10	48281300	75,076
MVP	-	2	06	06	G 1 1/2	G 1 1/2	1,50	IE3	11	25	11	25	63	IP54	10	48278702	86,714
MVP	✗	2	06	06	G 1 1/2	G 1 1/2	1,50	IE3	11	25	11	25	63	IP54	10	48281303	87,416

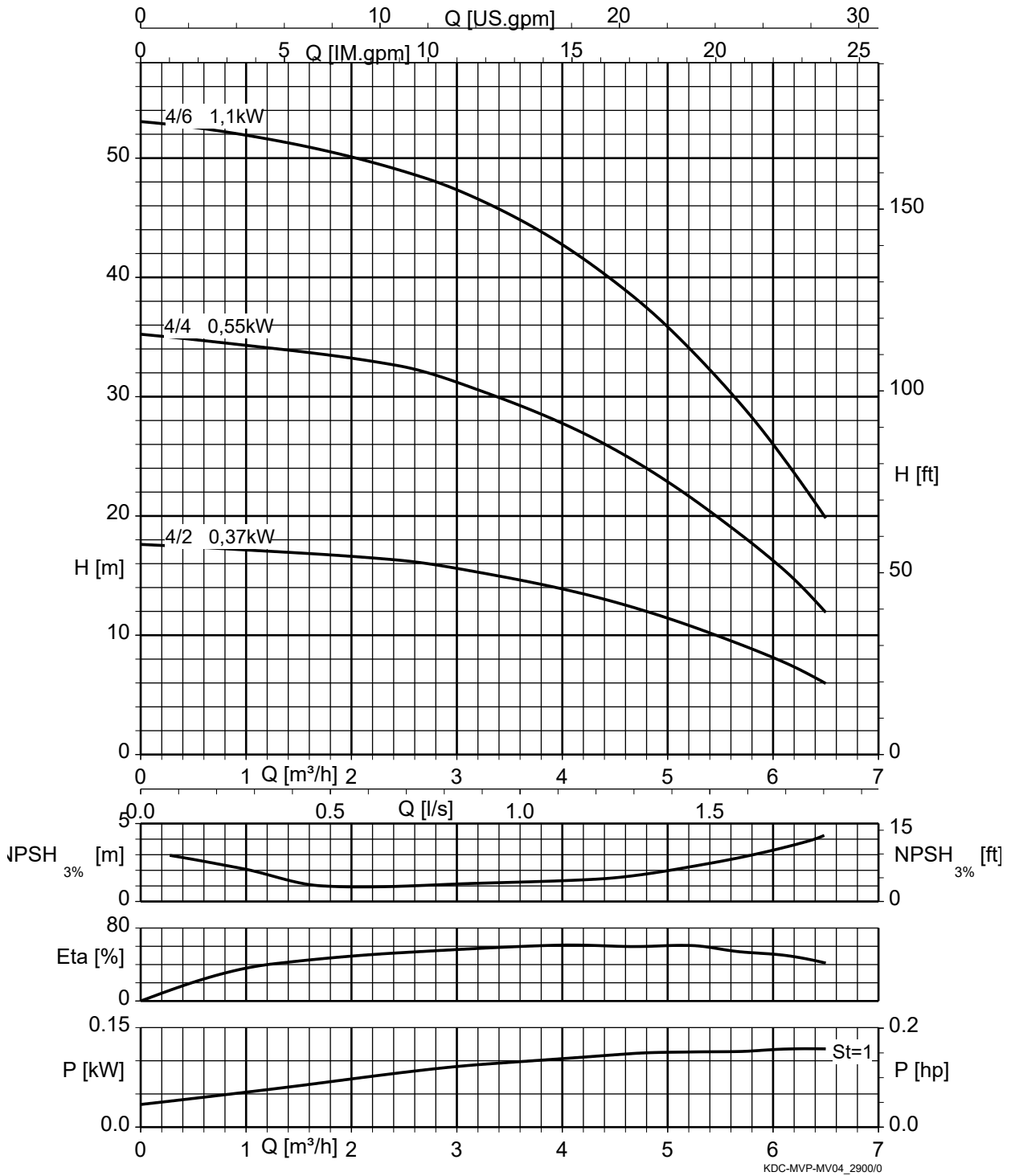
Characteristic Curves

DeltaSolo/Basic Compact MVP, Comeo 02, n ≈ 2880 rpm



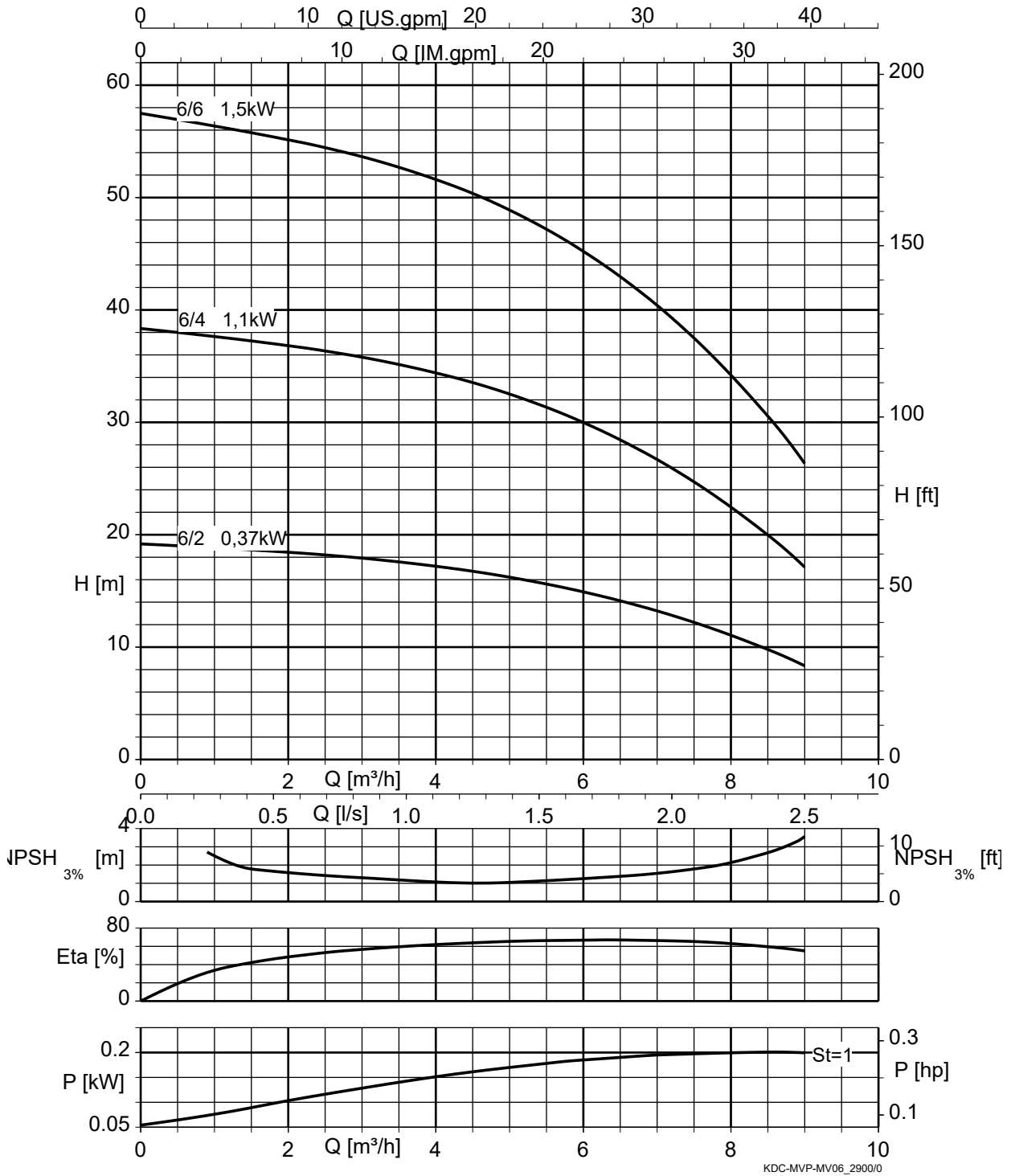
St = 1 | P per stage

DeltaSolo/Basic Compact MVP, Comeo 04, $n \approx 2880$ rpm



St = 1 | P per stage

DeltaSolo/Basic Compact MVP, Comeo 06, $n \approx 2880$ rpm



St = 1 | P per stage

Dimensions and connections

DeltaSolo Compact MVP, Comeo 02 / 04 / 06

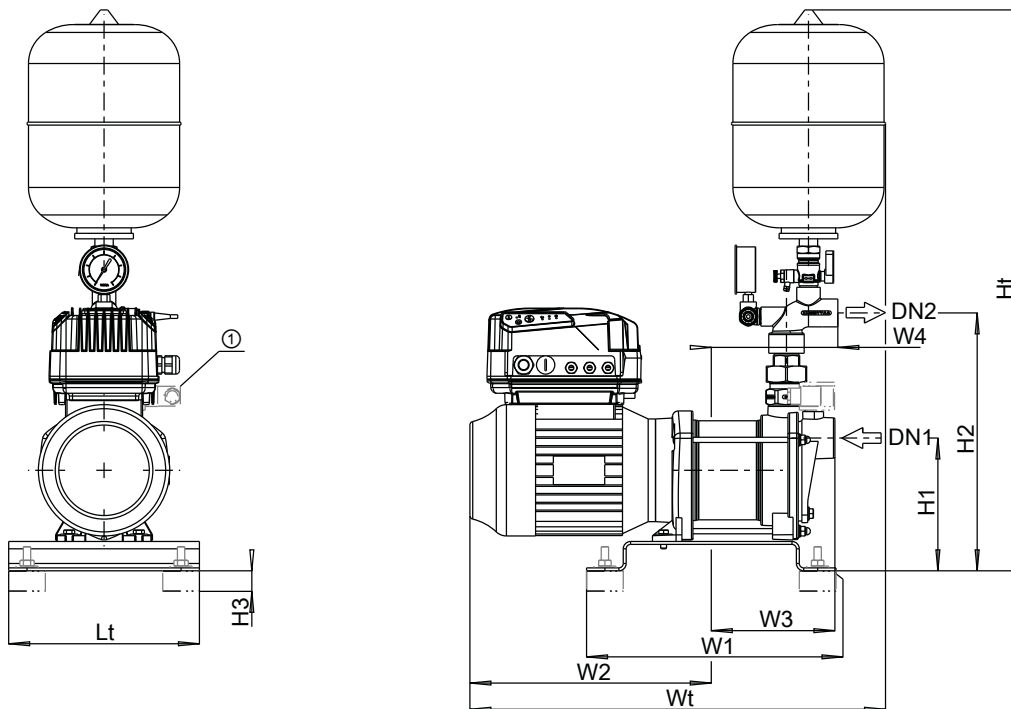


Fig. 2: Dimensions

①	Optional: pressure switch
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Table 8: Dimensions [mm] and connections

Number of pumps	With pressure switch	Comeo C	Number of stages	DN1	DN2	Lt	H1	H2	H3	Ht	W1	W2	W3	W4	WT
1	-	02	02	G 1 1/4	G 1	260	181	373	28	783	340	254	111	115	432
1	-	02	04	G 1 1/4	G 1	260	181	373	28	783	340	254	143	147	464
1	-	02	06	G 1 1/4	G 1	260	181	373	28	783	340	289	151	155	507
1	x	02	06	G 1 1/4	G 1	260	181	373	28	783	340	289	151	155	507
1	-	04	02	G 1 1/4	G 1	260	181	373	28	783	340	254	111	115	432
1	-	04	04	G 1 1/4	G 1	260	181	373	28	783	340	254	143	147	464
1	-	04	06	G 1 1/4	G 1	260	181	373	28	783	340	329	151	155	547
1	x	04	06	G 1 1/4	G 1	260	181	373	28	783	340	329	151	155	547
1	-	06	02	G 1 1/4	G 1	260	181	373	28	783	340	254	111	115	432
1	-	06	04	G 1 1/4	G 1	260	181	373	28	783	340	298	154	158	519
1	-	06	06	G 1 1/4	G 1	260	181	373	28	783	340	329	169	173	565
1	x	06	06	G 1 1/4	G 1	260	181	373	28	783	340	329	169	173	565

DeltaBasic Compact MVP, Cameo 02 / 04 / 06

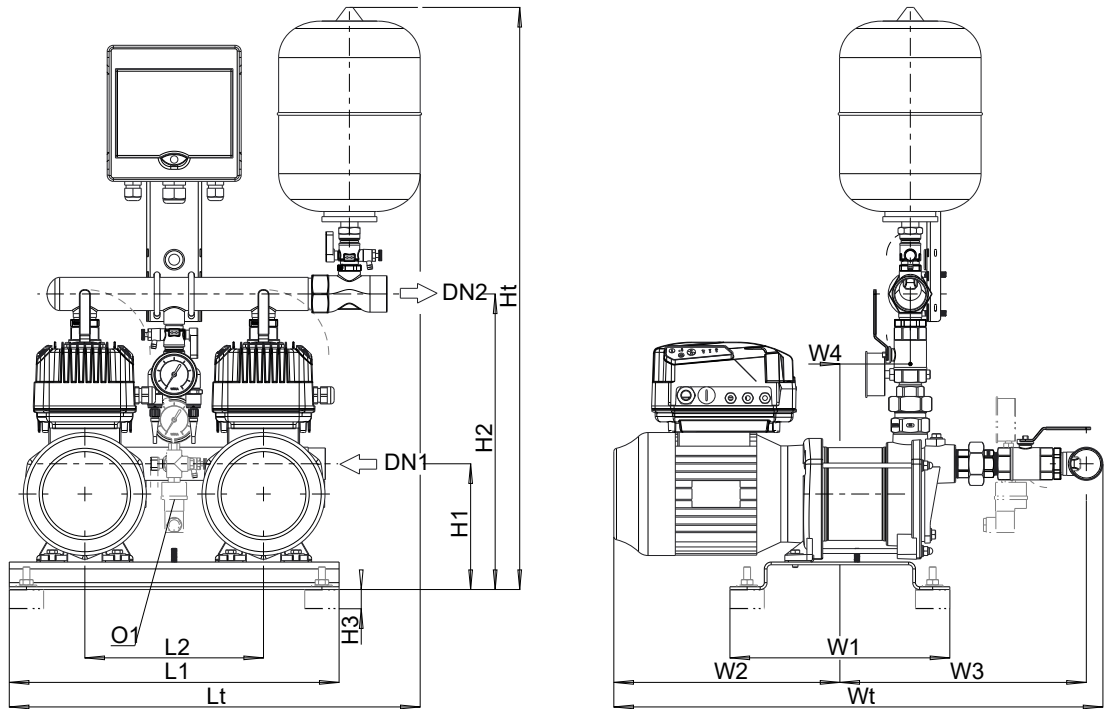


Fig. 3: Dimensions

① Optional: pressure switch

Table 9: Dimensions [mm] and connections

Number of pumps	With pressure switch	Comeo C	Number of stages	DN1	DN2	L1	L2	Lt	H1	H2	H3	Ht	W1	W2	W3	W4	WT
2	-	02	02	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	254	301	45	579
2	-	02	04	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	254	333	77	611
2	-	02	06	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	289	341	85	654
2	x	02	06	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	289	341	85	654
2	-	04	02	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	254	301	45	579
2	-	04	04	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	254	333	77	611
2	-	04	06	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	329	341	85	694
2	x	04	06	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	329	341	85	694
2	-	06	02	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	254	301	45	579
2	-	06	04	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	298	344	88	666
2	-	06	06	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	329	359	103	712
2	x	06	06	G 1 1/2	G 1 1/2	480	260	598	181	450	28	870	320	329	359	103	712

General assembly drawings/exploded views with list of components

DeltaSolo Compact MVP

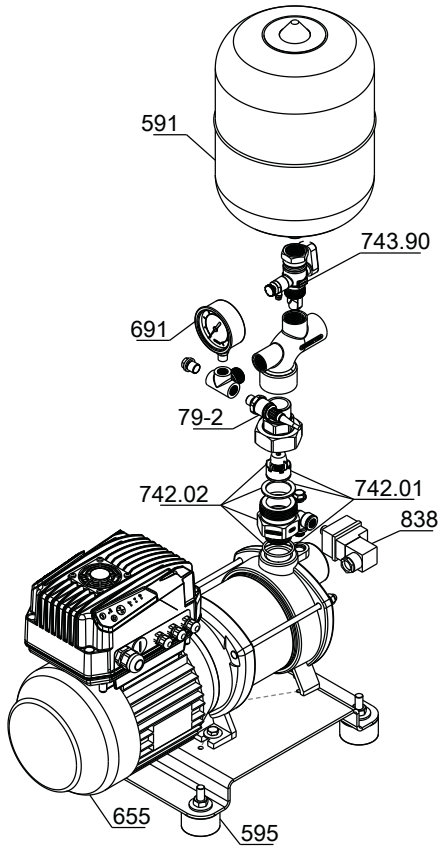


Fig. 4: DeltaSolo Compact MVP

Table 10: List of components

Part No.	Description	Part No.	Description
79-2	Measuring transducer	691	Pressure gauge
591	Membrane-type accumulator	742.01/02	Lift check valve
595	Anti-vibration pad	743.90	Ball valve
655	Pump	838	Pressure switch ⁴⁾

The individual parts of the pump set are shown in the product literature of the pump set.

⁴ Optional

DeltaBasic Compact MVP

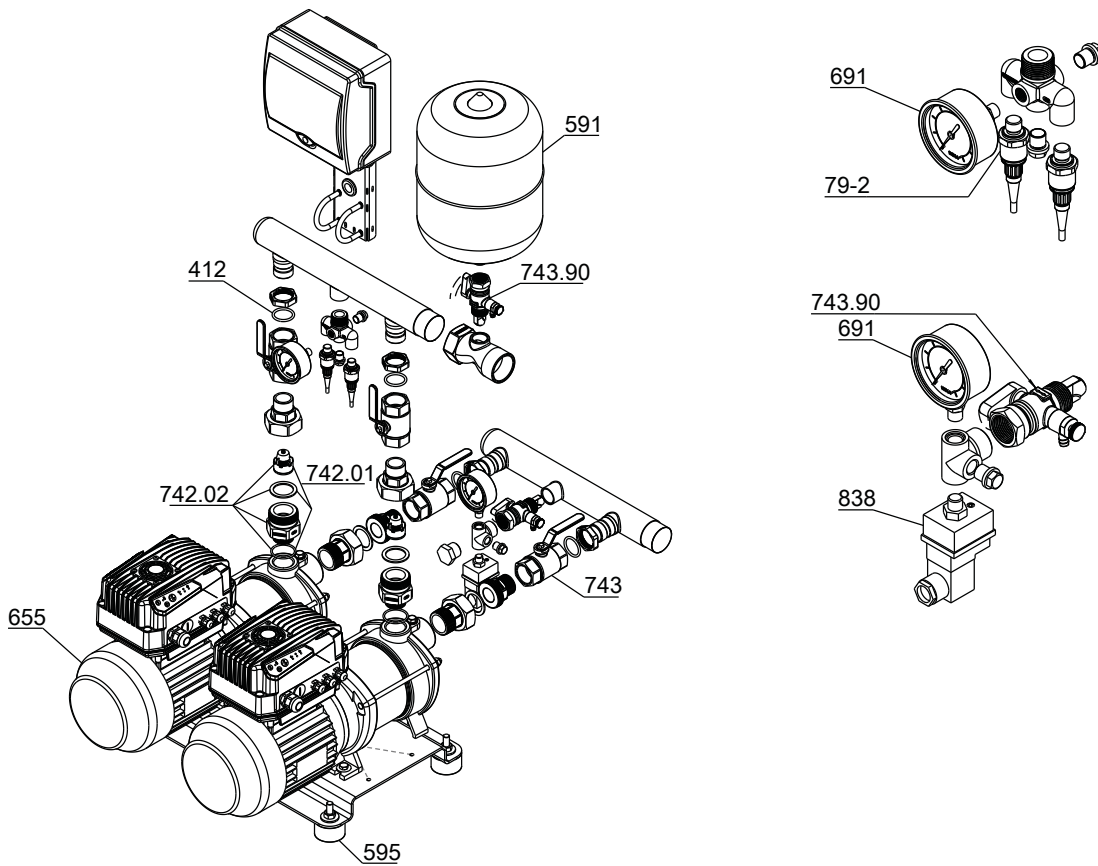


Fig. 5: DeltaBasic Compact MVP

Table 11: List of components

Part No.	Description	Part No.	Description
79-2	Measuring transducer	691	Pressure gauge
412	O-ring	742.01/02	Lift check valve
591	Membrane-type accumulator	743/90	Ball valve
595	Anti-vibration pad	838	Pressure switch ⁵⁾
655	Pump		

The individual parts of the pump set are shown in the product literature of the pump set.

Accessories

See the separate type series booklet Accessories for Pressure Booster Systems 1954.5.

⁵⁾ Optional

Glossary

IE3

Efficiency class to IEC 60034-30: 3 = Premium Efficiency
(IE = International Efficiency)

Mat. No.

This identification number is composed of an 8-digit numerical code that uniquely identifies a product entered in SAP.



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