

Break Tank Package Booster Set for Fire  
Fighting

## Hya-Solo D FL Compact

### Type Series Booklet



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Type Series Booklet Hya-Solo D FL Compact

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## Building Services: Water Supply

### Break Tank Package Booster Set for Fire Fighting

# Hya-Solo D FL Compact



#### Main applications

- Fire-fighting systems to DIN 14462

#### Fluids handled

- Fire-fighting water
- Liquids not containing aggressive, abrasive or solid substances

#### Operating data

Operating properties

Characteristic		Value
Flow rate	Q [m <sup>3</sup> /h]	≤ 48 / ≤ 192 <sup>1)</sup>
	Q [l/s]	≤ 13,3
Head	H [m]	≤ 160
Fluid temperature	T [°C]	≥ 0
		≤ +70
Operating pressure	p [bar]	≤ 16
Inlet pressure	p <sub>d</sub> [bar]	≤ 8
Power supply	U [V]	3/PE, AC 400, 50 Hz

#### Design details

##### Design

- Fully automatic break tank package booster set for fire fighting to EN 1717
- Baseplate-mounted
- Modular design (comprising 3 modules):
  - Control cabinet with hydraulic unit (pump set, valves, piping, pressure switch<sup>2)</sup> and temperature sensor<sup>2)</sup>)
  - Baseplate
  - Tank with inlet device and flushing device, overflow monitoring and dry running monitoring<sup>3)</sup>
- Vibration damping

##### Installation

- Stationary dry installation

##### Drive

- Three-phase asynchronous motor
- 380 / 420 V, 50 Hz
- 2 poles
- Enclosure IP55
- Efficiency class IE3 to IEC 60034-30
- Soft starter
- Pressure-controlled starting and flow-controlled stopping

##### Automation

- Electro-mechanical control system, IP54
- Timer
- Manual-automatic selector switch
- Phase monitoring relay
- In automatic mode, the motor protection circuit only outputs an alert.
- Terminal strip/terminals with identification for all connections
- Pressure switch or remote ON/OFF, monitored for broken wires and short circuit
- Circuit diagram to VDE and parts list for electric parts

##### Indication via indicator lamps:

- Colour LED indicating lack of water (red)
- Colour LED indicating a fault (amber)
- Colour LED indicating readiness for operation (green)
- Colour LED indicating operation started by pressure switch or remote ON/OFF (white)

##### Indication via volt-free isolating terminals:

- Lack of water
- Overflow
- Position of manual-automatic selector switch
- Pump control via pressure switch or remote ON/OFF
- General fault message
- Drinking water stop

Monitoring for broken wires and monitoring for short circuit:

1) On request  
 2) Supplied fitted and electrically connected, with default settings  
 3) Supplied assembled and pre-set. The electrical components can be connected and disconnected at the control cabinet via plug-type connections.

- > 10.3 kΩ: broken wire
- 10 kΩ: good state
- 1 kΩ: pump start through actuation of limit switch
- < 300 Ω: short circuit

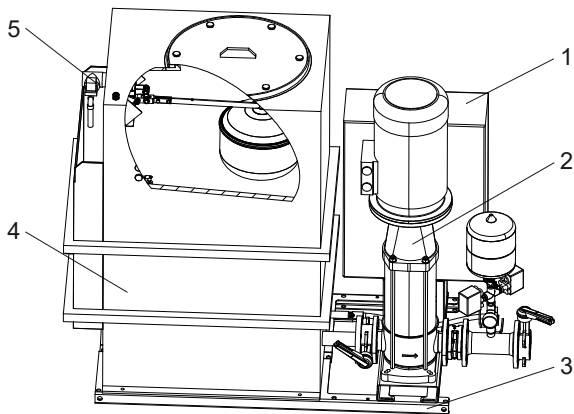
**Designation**

**Example: Hya-Solo D FL 1/1508 B Compact**

Designation key

Code	Description
Hya-Solo	Type series
D FL	Break tank package booster set for fire fighting with three-phase motor
1	Number of pump sets
15	Pump size
08	Number of stages
B	Design status
Compact	Compact design

**Configuration and function**



In the event of a fire, pumping the fluid handled is of top priority. In automatic mode, the protective features (dry running protection, motor protection) cannot be enabled. If the motor protection switch trips, the motor will keep running on the power supply network without further monitoring. A fault message is output.

The required quantity of the fluid handled is supplied via the float valve. The float valve at the drinking water inlet is opened and closed fully automatically as a function of the level in the tank. A float switch monitors for lack-of-water and overflow, and signals such events to the control system. Power supply of the flushing system and water level monitoring equipment is effected via terminals in the control cabinet.

**Fig. 1:** Illustration of the break tank package booster set for fire fighting

1	Control cabinet	4	Tank
2	High-pressure centrifugal pump	5	Inlet
3	Baseplate		

**Design**

Fully automatic, ready-to-connect break tank package booster set for fire fighting comprising one high-pressure centrifugal pump (2), a control cabinet (1) and a tank (4) for the hygienic separation of drinking water and fire-fighting water. The modular design allows separating the break tank package booster set for fire fighting into three modules (control cabinet with hydraulic unit, tank and baseplate). Anti-vibration mounts are fitted at the pump feet and baseplate (3).

**Function**

The pump set is started and stopped as a function of pressure via the electro-mechanical control system. If the pressure drops below the set start-up pressure  $p_E$ , the pump set is started up via the pressure switch. When consumption decreases again, the pump set is stopped as a function of pressure after the set after-run period (up to 10 minutes). Independently of the pressure switch, the break tank package booster set for fire fighting can also be controlled via remote ON/OFF (e.g. a switch in the wall hydrant). The pressure switch and remote ON/OFF input are monitored for broken wires and short circuit. If a broken wire or short circuit are detected, the break tank package booster set for fire fighting is started up automatically and a fault is indicated.

1951.55/11-EN

## Materials

Overview of available materials

Part No.	Description	Material
<b>Pump</b>		
101	Pump casing	Stainless steel
101	Pump shroud	Stainless steel
655	Hydraulic system	Stainless steel
-	Plain bearing	Aluminium oxide
433	Mechanical seal	To EN 12756
433.01	Primary ring	Silicon carbide
433.02	Mating ring	Carbon graphite
-	Elastomer	EPDM
<b>Hydraulic design</b>		
-	Piping	Chrome steel
79.01	Control unit	Steel, painted
-	Accumulator	Connection made of stainless steel
-	Membrane	Approved for drinking water
<b>Shut-off valves</b>		
-	Body	Nodular cast iron
-	Valve disc	Stainless steel
-	Liner material	EPDM-XV
-	Break tank	Polyethylene
-	Swing check valve	Cast steel
-	Float valve	Brass / copper / EPDM

## Product benefits

- Ready to connect due to standardised dimensions
- Design to DIN 14462 ensures reliable operation in the event of fire.
- Hygienic separation of drinking water and fire-fighting water eliminates any risk of contamination.
- Hygienically safe owing to inlet valve approved for drinking water and automatic flushing
- Straightforward installation due to modular design and drain connection with integrated odour trap
- Reliable operation due to redundant pressure switch


## Product information

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

For information as per chemicals Regulation (EC) No. 1907/2006 (REACH), see <http://www.ksb.com/reach>.

## Certifications

Overview

Label	Effective in:	Comment
	Germany	-

**Selection information**

**Lightning protection**

- Electrical installations must be protected against overvoltage (compulsory since 14 December 2018) (see DIN VDE 0100-443 (IEC60364-4-44:2007/A1:2015, modified) and DIN VDE 0100-534 (IEC 60364-5-53:2001/A2:2015, modified). Whenever modifications are made to existing installations, retrofitting a surge protective device (SPD) in accordance with VDE is mandatory.
- A maximum cable length of 10 metres should not be exceeded between the surge protective device (usually type 1, internal lightning protection) installed at the service entrance and the equipment to be protected. For longer cables, additional surge protective devices (type 2) must be provided in the sub-distribution board upstream of the equipment to be protected or directly in the equipment itself.
- The associated lightning protection concept must be provided by the operator or by a suitable provider commissioned by the operator. Surge protective devices can be offered for the control units on request.

**Selecting the break tank package booster set for fire fighting**

**i** For selecting the break tank package booster set for fire fighting see KSB EasySelect and/or the Planning Information for Fire-fighting Water Systems (reference number 2300.023).

**Example**

Specify the duty points:

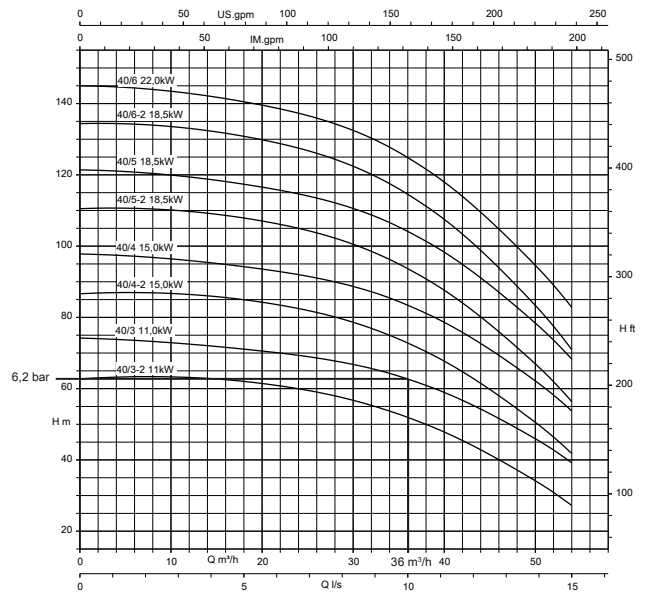
- Flow rate required: 36 m<sup>3</sup>/h
- Head: 62 m (start-up pressure p<sub>c</sub>: 6.2 bar)

Calculation:

1. Transfer the values to the selection chart to select the corresponding pump size.

⇒ Movitec 40/3

⇒ Hya-Solo D FL 1/4003 Compact



Selection chart for determining the break tank package booster set for fire fighting (example)

## Technical data

### Technical data and selection aid

Size	Connection	Nominal power	Nominal current	Starting current (soft start) <sup>4)</sup>	Total rated power	Effective volume	Mat. No.	[kg]
		P <sub>N</sub>	I <sub>N</sub>		S			
		[kW]	[A]		[kVA]			
			3~400 V, 50 Hz					
			[A]	[A]	[kVA]	[l]		
1/1504 B	R 2	4,00	7,45	36,7	5,2	540	29133656	116
1/1505 B	R 2	5,50	10,00	51,0	6,9	540	29133657	161
1/1506 B	R 2	5,50	10,00	51,0	6,9	540	29133658	162
1/1507 B	R 2	7,50	13,40	68,1	9,3	540	29133659	167
1/1508 B	R 2	7,50	13,40	68,1	9,3	540	29133660	169
1/1509 B	R 2	11,00	19,30	89,6	13,4	540	29133661	248
1/1510 B	R 2	11,00	19,30	89,6	13,4	540	29133662	249
1/2503 B	DN 65	5,50	10,00	51,0	6,9	540	29134397	191
1/2504 B	DN 65	7,50	13,40	68,1	9,3	540	29134398	198
1/2505 B	DN 65	11,00	19,30	89,6	13,4	540	29134399	282
1/2506 B	DN 65	11,00	19,30	89,6	13,4	540	29134400	285
1/2507 B	DN 65	15,00	26,20	121,6	18,2	540	29134401	299
1/4003-2 B	DN 80	11,00	19,30	89,6	13,4	540	29134575	246
1/4003 B	DN 80	11,00	19,30	89,6	13,4	540	29134576	246
1/4004-2 B	DN 80	15,00	26,20	121,6	18,2	540	29134577	250
1/4004 B	DN 80	15,00	26,20	121,6	18,2	540	29134578	264
1/4005-2 B	DN 80	18,50	31,80	147,2	22,0	540	29134579	270
1/4005 B	DN 80	18,50	31,80	147,2	22,0	540	29134580	284
1/4006-2 B	DN 80	18,50	31,80	147,2	22,0	540	29134581	287
1/4006 B	DN 80	22,00	37,60	185,3	26,1	540	29134582	326

## Selection aid for control cabinets

### Overview of control cabinets

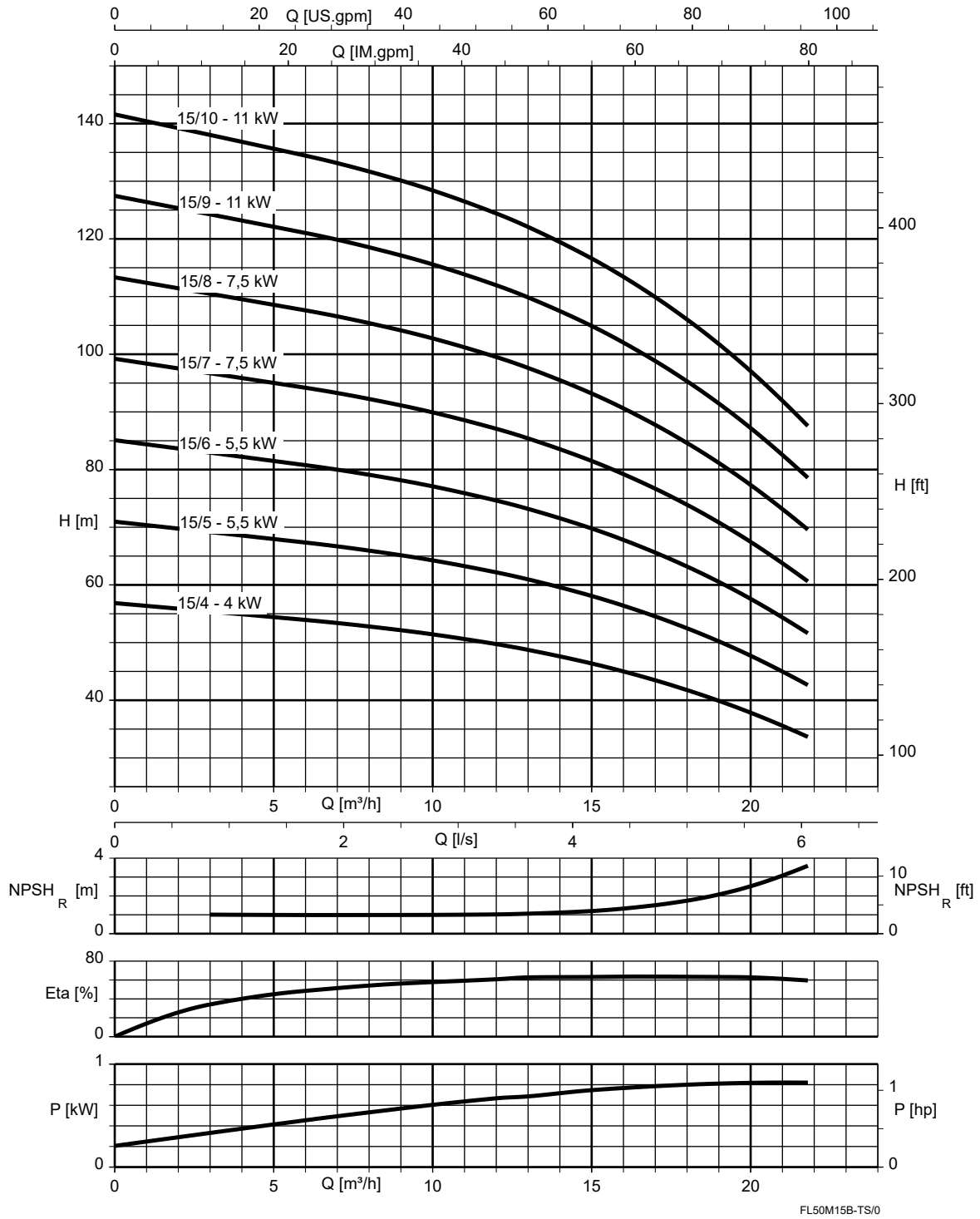
Motor rating per pump	Maximum connection cross-section		Control cabinet size
	Stranded	Solid	H x W x D
	[mm <sup>2</sup> ]	[mm <sup>2</sup> ]	[mm]
[kW]			
5,5	6	10	600 x 800 x 250
7,5	6	10	600 x 800 x 250
11	10	16	600 x 800 x 250
15	16	25	600 x 800 x 250
18,5	16	25	600 x 800 x 250
22	16	25	1000 x 600 x 250
30	35	50	1000 x 600 x 250
37	50	50	1000 x 800 x 300
45	70	95	1000 x 800 x 300

4) Recommended triggering characteristic of fuse elements: gG or C



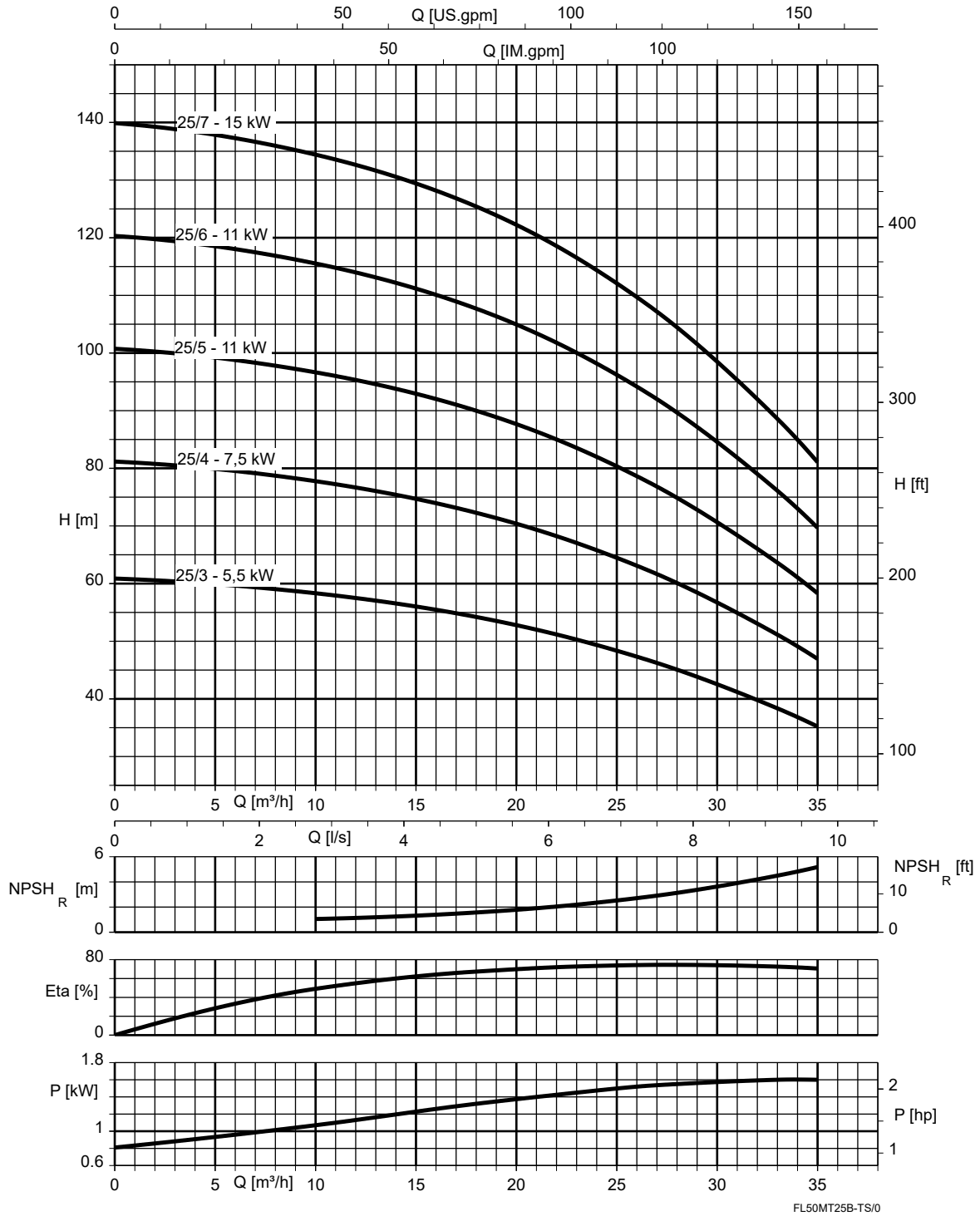
Characteristic curves

Hya-Duo D FL Compact with Movitec 15 B, n = 2900 rpm

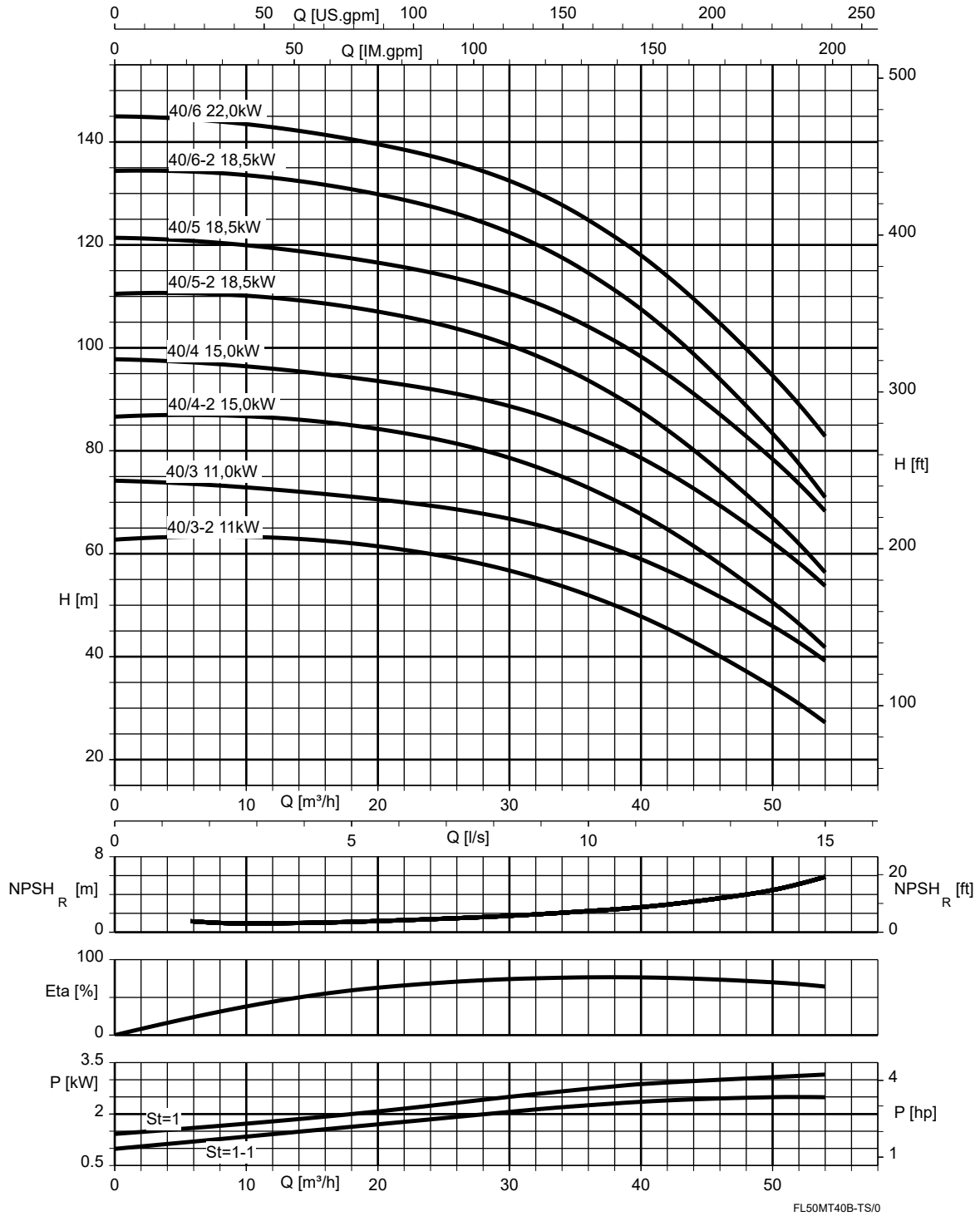


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Hya-Duo D FL Compact with Movitec 25 B, n = 2900 rpm

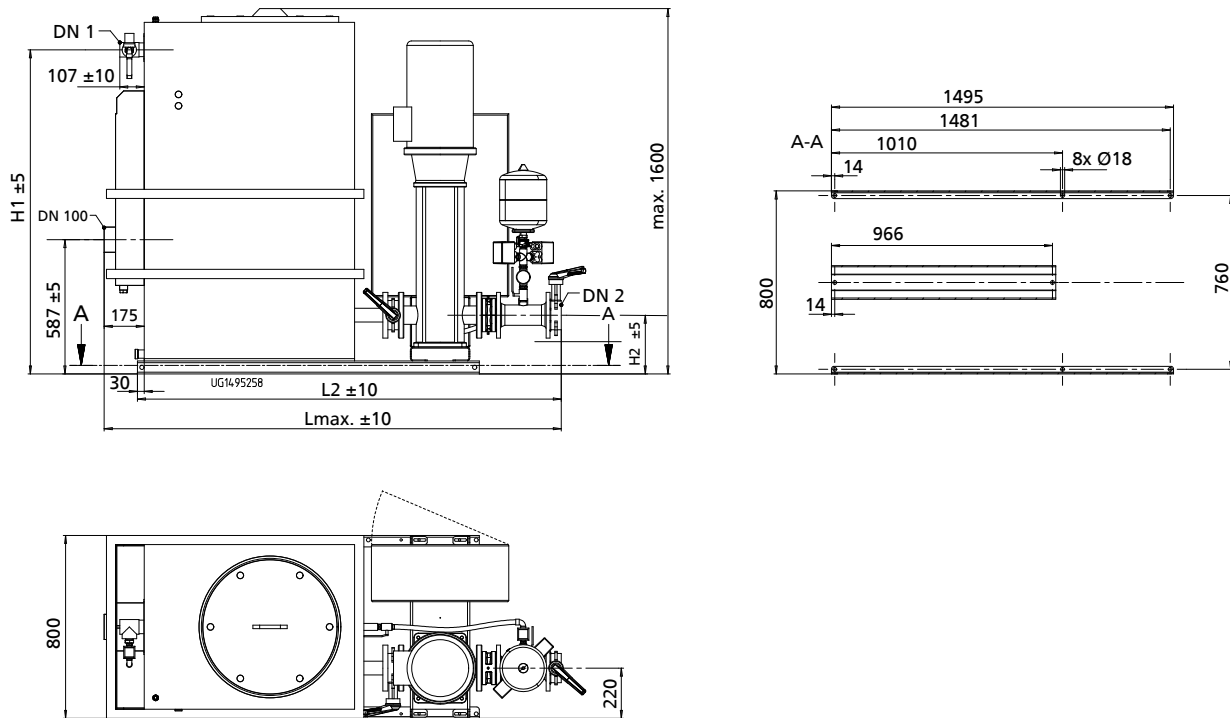


Hya-Duo D FL Compact with Movitec 40 B, n = 2900 rpm



## Dimensions

### Hya-Solo D FL Compact



Flanges drilled to EN 1092-1 PN 16

Dimensions [mm]


Size	DN 1	DN 2	H1	H2	L2	Lmax
1/15...	G 1 1/4	50	1362	208	1820	1965
1/25...	G 1 1/4	65	1362	223	1845	1990
1/40...	G 2	80	1417	257	1855	2000

### Scope of supply

Depending on the model, the following items are included in the scope of supply:

- Break tank package booster set for fire fighting
  - 1 vertical Movitec high-pressure centrifugal pump
  - Discharge-side piping
  - Check valve
  - Shut-off valves
  - Discharge-side, direct-flow membrane-type accumulator
  - Two pressure switches on the discharge side
  - Pressure gauge
  - Base frame
  - Drain connection with integrated odour trap
  - Temperature sensor
  - Automatic flushing
  - Tank with type AB air gap to EN 1717
  - Float valve for mains water supply to DVGW
- Control unit
  - Power supply connection
  - Motor protection switch
  - Master switch
  - Broken wire monitoring relay and short-circuit monitoring relay
  - Manual-automatic selector switch
  - Timer
  - Phase monitoring relay
  - Soft starter
  - Control transformer
  - Terminal strip with markings for all connections
  - Plug-type connection for the control cabinet and tank

### Accessories

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







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