

DESIGN ENVELOPE (PERMANENT MAGNET) 6800 G QUINTEPLEX DOMESTIC COLD WATER BOOSTER | (5 DUTY PUMPS OR 4 DUTY + 1 STANDBY PUMP) | SUBMITTAL

File No: 100.614
Date: AUGUST 27, 2021
Supersedes: 100.614, 100.618
Date: APRIL 19, 2019

Job: _____ Representative: _____

Order No: _____ Date: _____

Contractor: _____ Submitted by: _____ Date: _____

Engineer: _____ Approved by: _____ Date: _____

BOOSTER PACKAGE DESIGN DATA

Tag: _____ Model: _____

Operation: 5 Duty 4 Duty + 1 Standby

Total Flow: _____ USgpm (L/s) Flow per Pump: _____ USgpm (L/s)

Suction (Supply) Pressure: _____ ft (psi /m)

Boost Pressure (Head): _____ ft (psi /m)

Discharge Pressure: _____ ft (psi /m) Total Duty Hp: _____

Liquid: Water Max Temperature: 73°F ± 4 (23°C ± 2)

Other: _____ Max Temperature: _____ °F (°C)

Specific Gravity: _____ Viscosity: _____ lbf*s/ft² (Pa*s)

NOTE: Test tolerance according to ISO 9906 Grade 2B
±8% on measured flow and ±5% on measured head

BOOSTER PACKAGE CONSTRUCTION DATA

Certification: NSF 61/372 (as a complete package)

Pump Type: 4700 (Vertical Multi Stage)

Pump Construction: Full Stainless Steel (VMS 10, VMS 15, VMS 20)

Stainless Steel with Cast Iron Bottom
Casing & Casing Cover (VMS 32, VMS 45, VMS 64)

Piping Material: 304 Stainless Steel

Base & Stanchion Material: 304 Stainless Steel

Suction Valve Type: Butterfly **Discharge Valve Type:** Flo-Trex

Suction Connection Orientation: Right Left

Discharge Connection Orientation: Right Left

System Connection Type: Grooved Flanged

Optional Suction Flange Type: ANSI 125/150

Optional Discharge Flange Type: ANSI 125/150
 ANSI 250/300

MOTOR DATA

Motor Type (Efficiency): Induction (NEMA Premium)

Permanent Magnet
(IE5: better than NEMA Super Premium)

Voltage: _____ V Phase: 3 Hertz(rpm): 60 Hz(3600 rpm)
 50 Hz(3000 rpm)

Enclosure: ODP TEFC

NOTE: Permanent Magnet Motors are only available with TEFC Enclosure

DRIVE DATA

Drive Type: VFD (Induction Motors)

ECM (Permanent Magnet Motors)

Enclosure: UL Type 12 (Induction Motors)

IP55 (ECM Motors)

EMI/RFI Control: Integrated filter designed to meet EN61800-3

Harmonic Suppression: Integrated dc link reactors
(in all VFDs and 112 frame ECMs)

Cooling: Fan-cooled through back channel

Ambient temperature: -14°F to +113°F (-10°C to +45°C)
up to 3280 ft (1000m) above sea level

CONTROL PANEL DATA

UL508/CSA labelled

NEMA 4 Enclosure

4.3" Color Touchscreen

Door Interlocked Main Disconnect

Fused Motor Protection

Fused Control Circuit Transformer

Power on Indication

Motor Run Indication

Virtual Hand-Off-Auto (HOA) for each pump

Flash Memory Storage

CONTROLS CAPABILITIES

Safety Features:

- High Suction Pressure Shutdown
- Low Suction Shutdown w/ Auto Restart
- End of Curve Protection
- Soft Fill Mode
- Emergency Power Mode

Conformance to ASHRAE 90.1 Section 10.4:

- No-flow shutdown
- Pressure setback mode

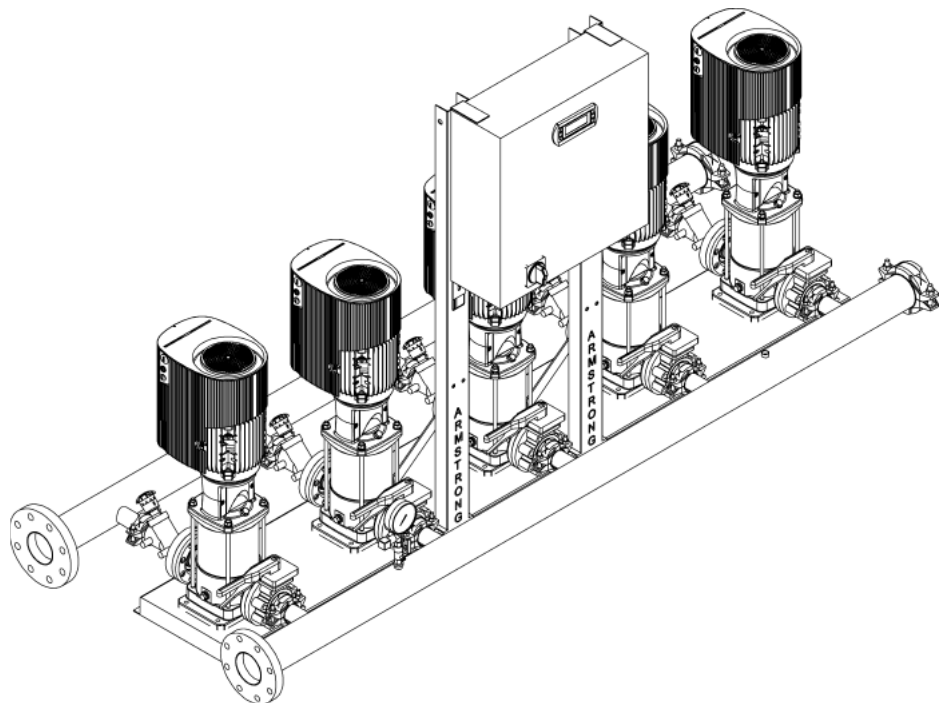
Convenience Features:

- Field Adjustable Set Points, Alarms and Timers
- Alternate Setpoints
- Auto Alternation of Pumps
- Minimal Run Timer
- Pump On Delay Timer
- Pump Switch Over (in case of lead pump failure)
- No-flow pressure optimization

OPTIONAL EQUIPMENT

- BMS Communication Protocol: BACnet/IP
 BACnet MS/TP
 Modbus RTU
 LonWorks

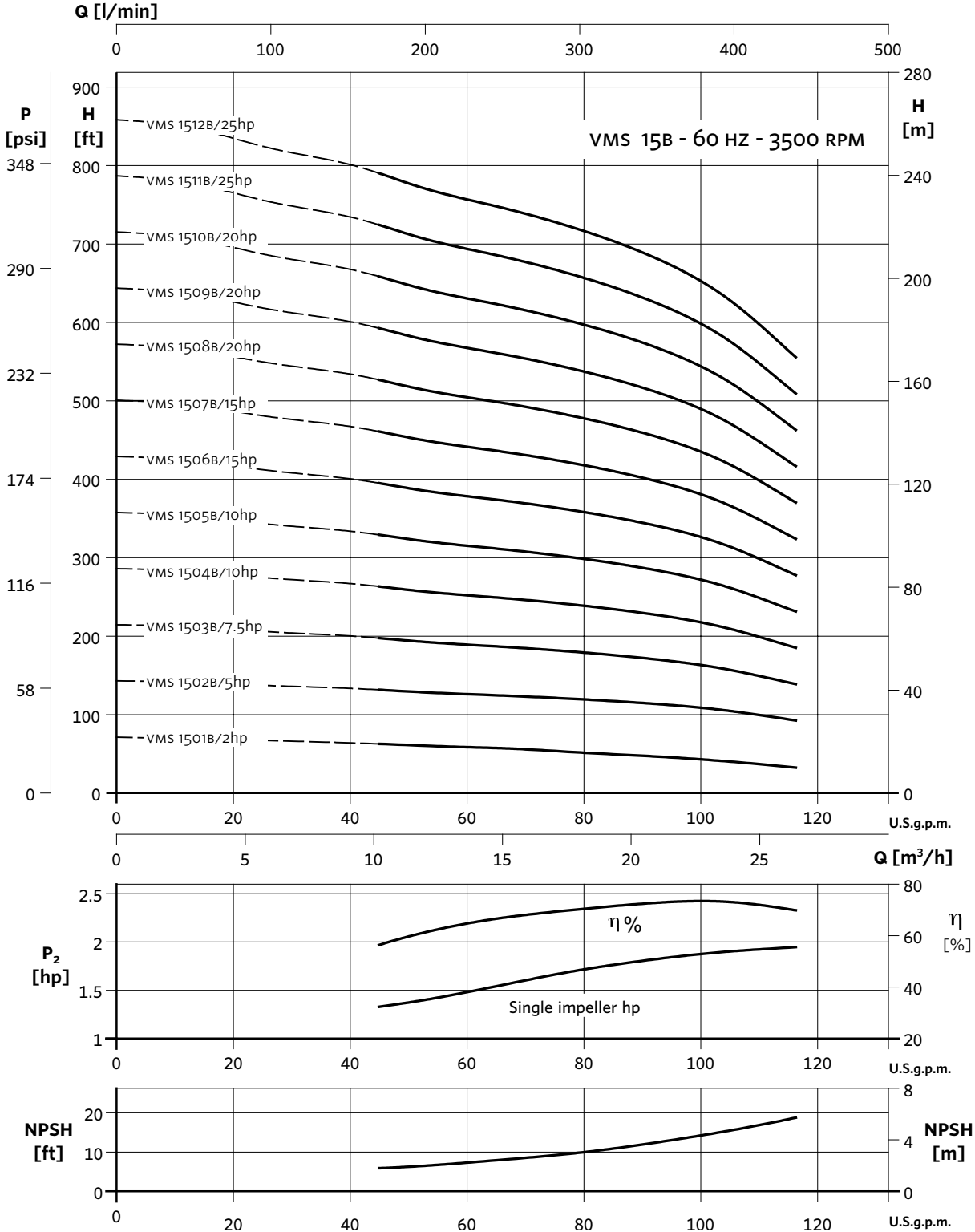
- Locking Handle (c/w [2] Keys)
- System PRV
- Low Suction Level Shutdown
- Float Switch
- Remote Pressure Transducer
- Header Shipped Loose



DESIGN ENVELOPE (PERMANENT MAGNET) CAPABILITY DATA												
DUTY-DUTY MODELS		DUTY-STANDBY MODELS		PUMP MODEL	MAX FLOW USgpm (L/s)		MAX HEAD ft (m)	BEP EFFICIENCY (%)	HP PER PUMP	DE MOTOR FRAME		DEP.M. MOTOR FRAME
DE	DEPM	DE	DEPM		DUTY-DUTY MODELS	DUTY-STANDBY MODELS				ODP	TEFC	TEFC
<input type="checkbox"/> N550222	—	<input type="checkbox"/> N450222S	—	VMS-3202-2	927.5 (58.52)	742.0 (46.81)	148.8 (45.4)	68.7	7.5	182/4TC	—	—
<input type="checkbox"/> N550322	—	<input type="checkbox"/> N450322S	—	VMS-3203-2	930.13 (58.69)	744.1 (46.95)	237.0 (72.2)	68.7	10	213/5TC	—	—
<input type="checkbox"/> N550432	—	<input type="checkbox"/> N450432S	—	VMS-3204-3	930.13 (58.69)	744.1 (46.95)	314.6 (95.9)	68.7	15	213/5TC	—	—
<input type="checkbox"/> N550502	—	<input type="checkbox"/> N450502S	—	VMS-3205	915.38 (57.75)	732.3 (46.20)	449.9 (137.1)	68.7	20	254/6TC	—	—
<input type="checkbox"/> N550602	—	<input type="checkbox"/> N450602S	—	VMS-3206	926.5 (58.45)	741.2 (46.76)	546.1 (166.5)	68.7	25	—	284/6TC	—
<input type="checkbox"/> N560102	—	<input type="checkbox"/> N460102S	—	VMS-4501E	1388.8 (87.62)	1111.0 (70.09)	116.7 (35.6)	83.1	7.5	—	213/5TC	—
<input type="checkbox"/> N560212	—	<input type="checkbox"/> N460212S	—	VMS-4502-1	1399.4 (88.29)	1119.5 (70.63)	200.4 (61.1)	83.1	15	213/5TC	—	—
<input type="checkbox"/> N560412	—	<input type="checkbox"/> N460412S	—	VMS-4504-1	1411.25 (89.04)	1129.0 (71.23)	445.0 (135.6)	83.1	30	284/6TC	—	—
<input type="checkbox"/> N560502	—	<input type="checkbox"/> N460502S	—	VMS-4505	1383.5 (87.29)	1106.8 (69.83)	611.3 (186.3)	83.1	40	—	324/6TSC	—
<input type="checkbox"/> N570102	—	<input type="checkbox"/> N470102S	—	VMS-6401E	1963.0 (123.85)	1570.4 (99.08)	123.2 (37.6)	84.7	10	213/5TC	—	—
<input type="checkbox"/> N570212	—	<input type="checkbox"/> N470212S	—	VMS-6402-1	2029.2 (128.02)	1623.4 (102.42)	226.6 (69.1)	84.7	20	254/6TC	—	—
<input type="checkbox"/> N570322	—	<input type="checkbox"/> N470322S	—	VMS-6403-2	2029.2 (128.02)	1623.4 (102.42)	329.2 (100.3)	84.7	30	284/6TC	—	—
<input type="checkbox"/> N570422	—	<input type="checkbox"/> N470422S	—	VMS-6404-2	1994.4 (125.83)	1595.5 (100.66)	465.0 (141.7)	84.7	40	—	324/6TSC	—
<input type="checkbox"/> N580302	<input type="checkbox"/> PM580302	<input type="checkbox"/> N480302S	<input type="checkbox"/> PM480302S	VMS-1503BE	587.9 (37.09)	470.3 (29.67)	189.8 (57.9)	72.5	5	182/4TC	—	112
<input type="checkbox"/> N580402	<input type="checkbox"/> PM580402	<input type="checkbox"/> N480402S	<input type="checkbox"/> PM480402S	VMS-1504BE	587.9 (37.09)	470.3 (29.67)	253.1 (77.1)	72.5	7.5	—	213/5TC	—
<input type="checkbox"/> N580502	<input type="checkbox"/> PM580502	<input type="checkbox"/> N480502S	<input type="checkbox"/> PM480502S	VMS-1505B	584.6 (36.88)	467.68 (29.51)	316.4 (96.4)	72.5	10	213/5TC	—	—
<input type="checkbox"/> N580702	—	<input type="checkbox"/> N480702S	—	VMS-1507B	587.9 (37.09)	470.3 (29.67)	442.9 (135.0)	72.5	15	213/5TC	—	—
<input type="checkbox"/> N581002	—	<input type="checkbox"/> N481002S	—	VMS-1510B	591.2 (37.30)	473.0 (29.84)	639.9 (195.0)	72.5	20	254/6TC	—	—
<input type="checkbox"/> N590102	<input type="checkbox"/> PM590102	<input type="checkbox"/> N490102S	<input type="checkbox"/> PM490102S	VMS-2001B	668.25 (42.17)	534.6 (33.73)	71.8 (21.9)	73	3	143/5TC	—	90
<input type="checkbox"/> N590202	<input type="checkbox"/> PM590202	<input type="checkbox"/> N490202S	<input type="checkbox"/> PM490202S	VMS-2002B	656.38 (41.42)	525.1 (33.13)	143.5 (43.7)	73	5	182/4TC	—	112

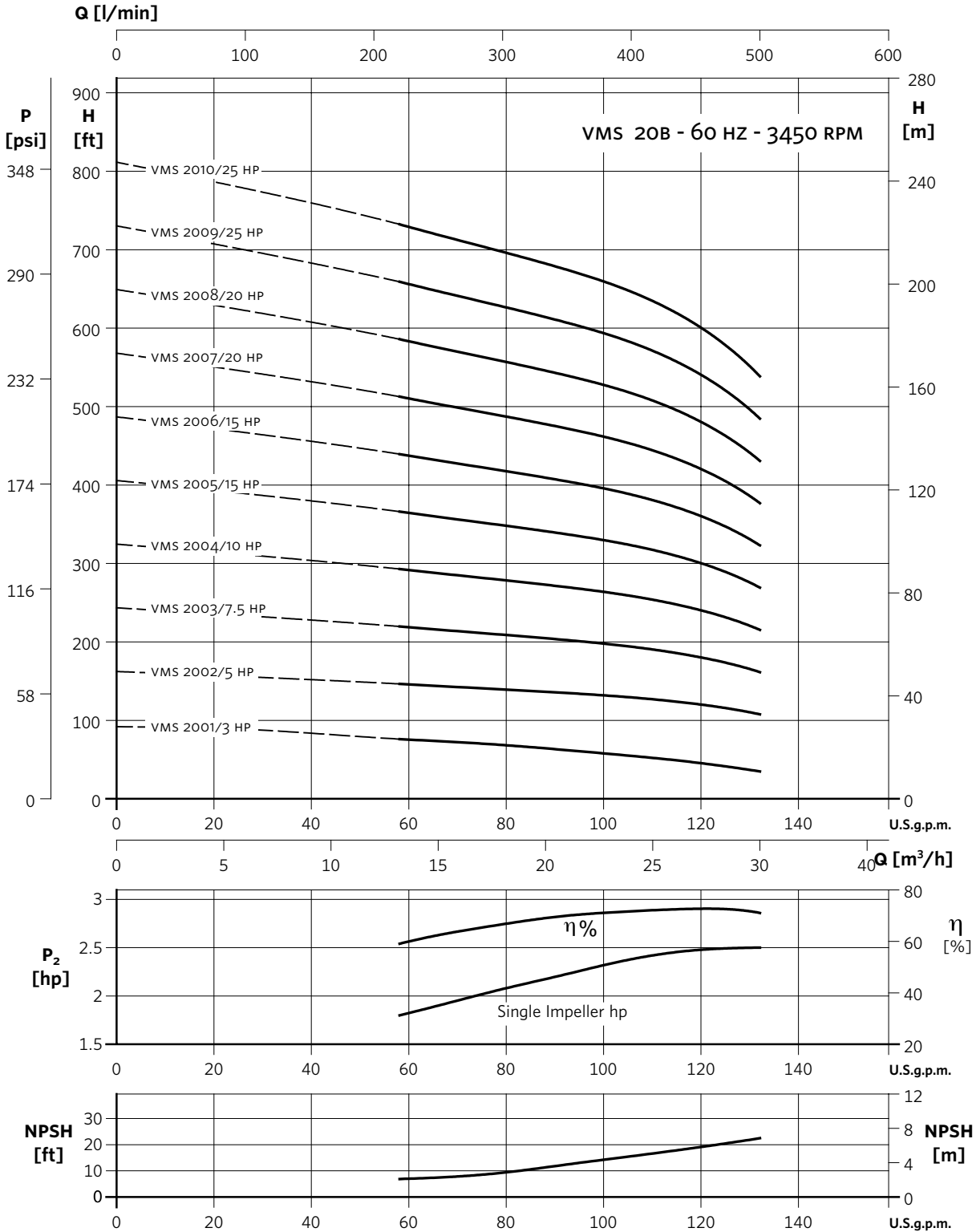
Notes:
 1 Standard right hand orientation with grooved connections illustrated
 2 All pumps are the same

PERFORMANCE CURVE - VMS 15B



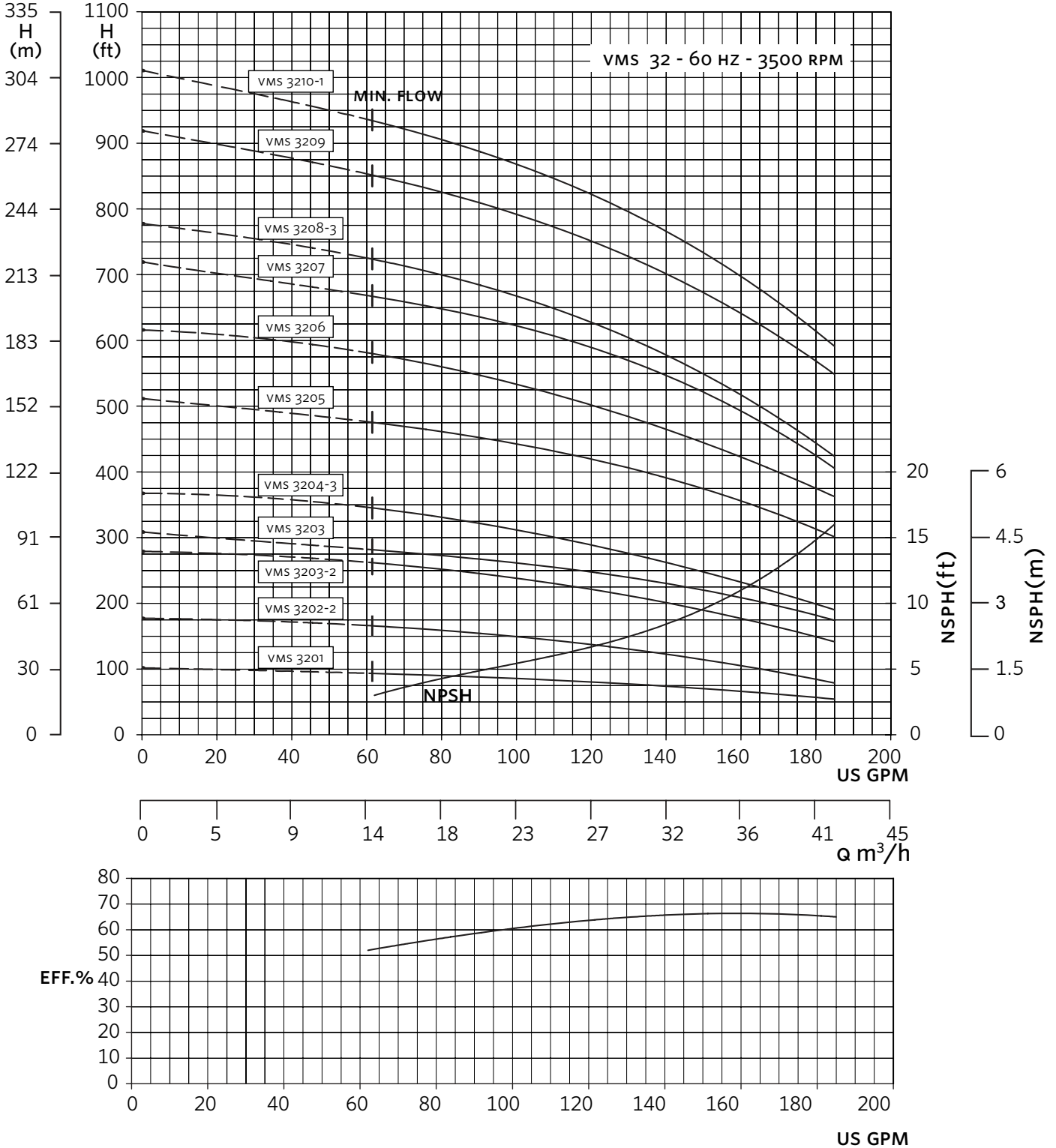
NOTE: Pump curves are shown for information purpose only and should not be used for selection. Individual pump curves don't represent the performance of a complete package as they ignore losses and control constraints. Please refer to **Curves and diagrams** on Armstrong's website for a detailed performance envelope for the specific booster model.

PERFORMANCE CURVE - VMS 20B



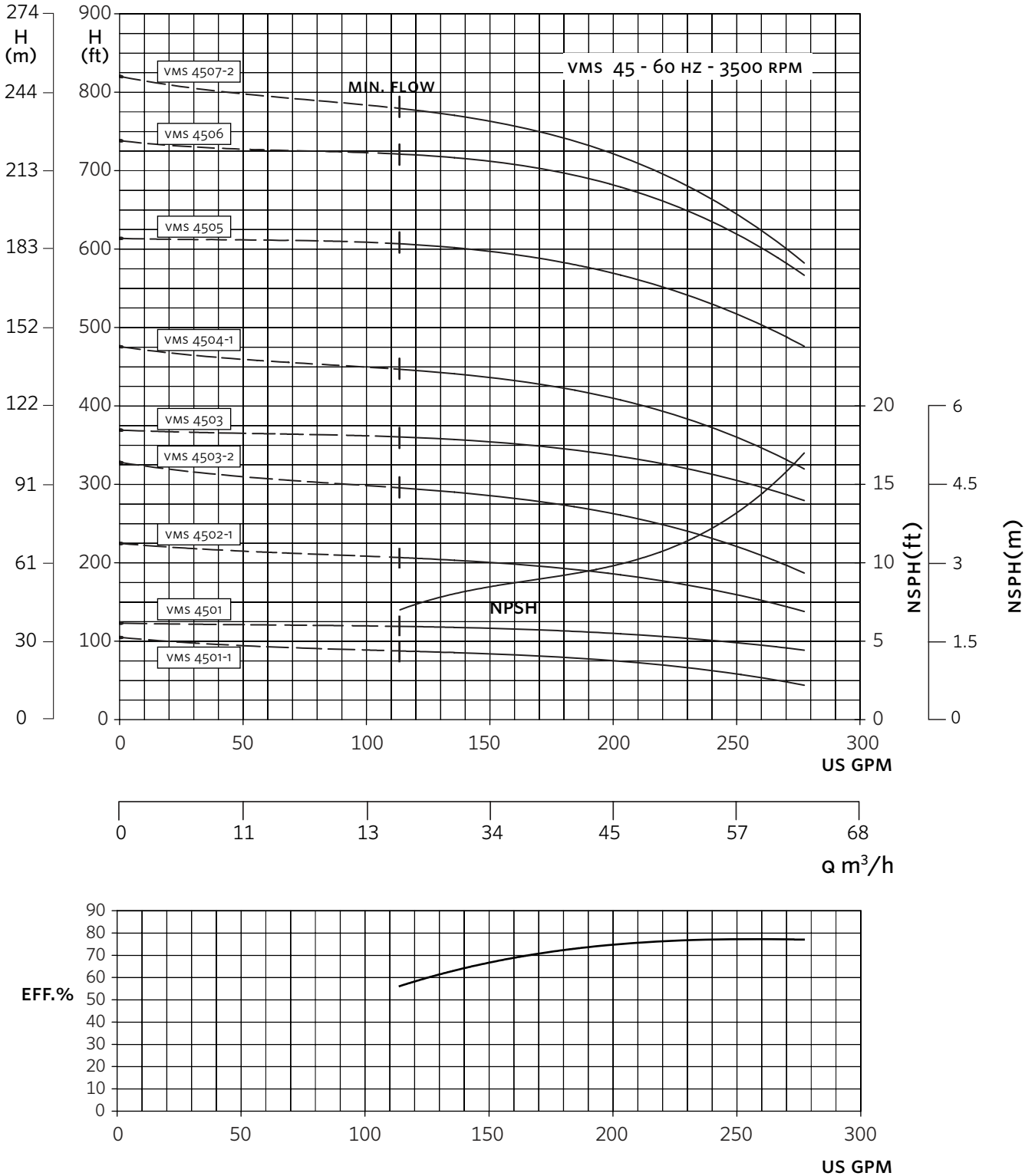
NOTE: Pump curves are shown for information purpose only and should not be used for selection. Individual pump curves don't represent the performance of a complete package as they ignore losses and control constraints. Please refer to **Curves and diagrams** on Armstrong's website for a detailed performance envelope for the specific booster model.

PERFORMANCE CURVE - VMS 32



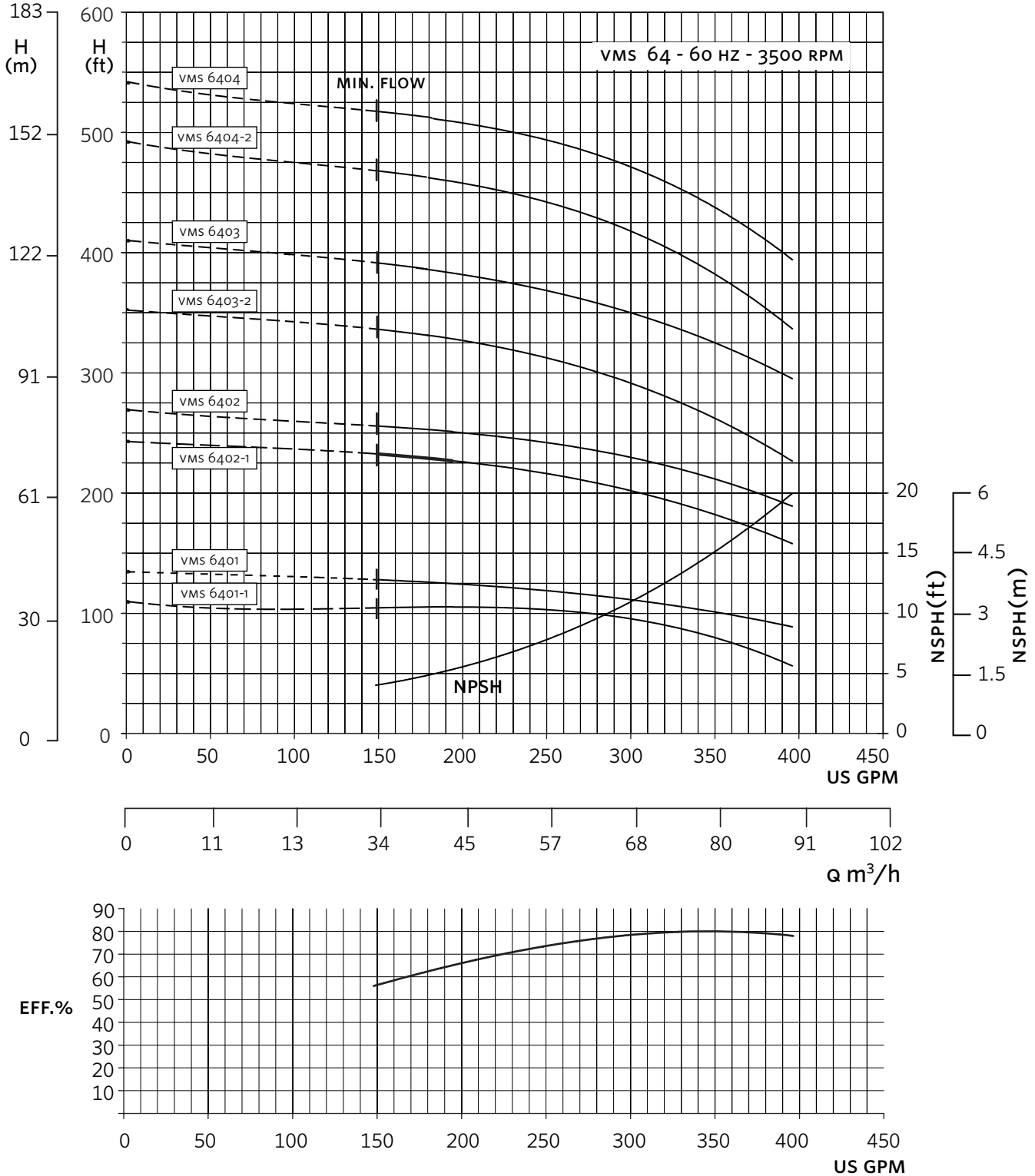
NOTE: Pump curves are shown for information purpose only and should not be used for selection. Individual pump curves don't represent the performance of a complete package as they ignore losses and control constraints. Please refer to **Curves and diagrams** on Armstrong's website for a detailed performance envelope for the specific booster model.

PERFORMANCE CURVE - VMS 45

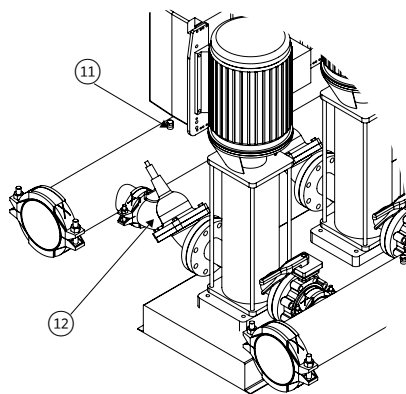
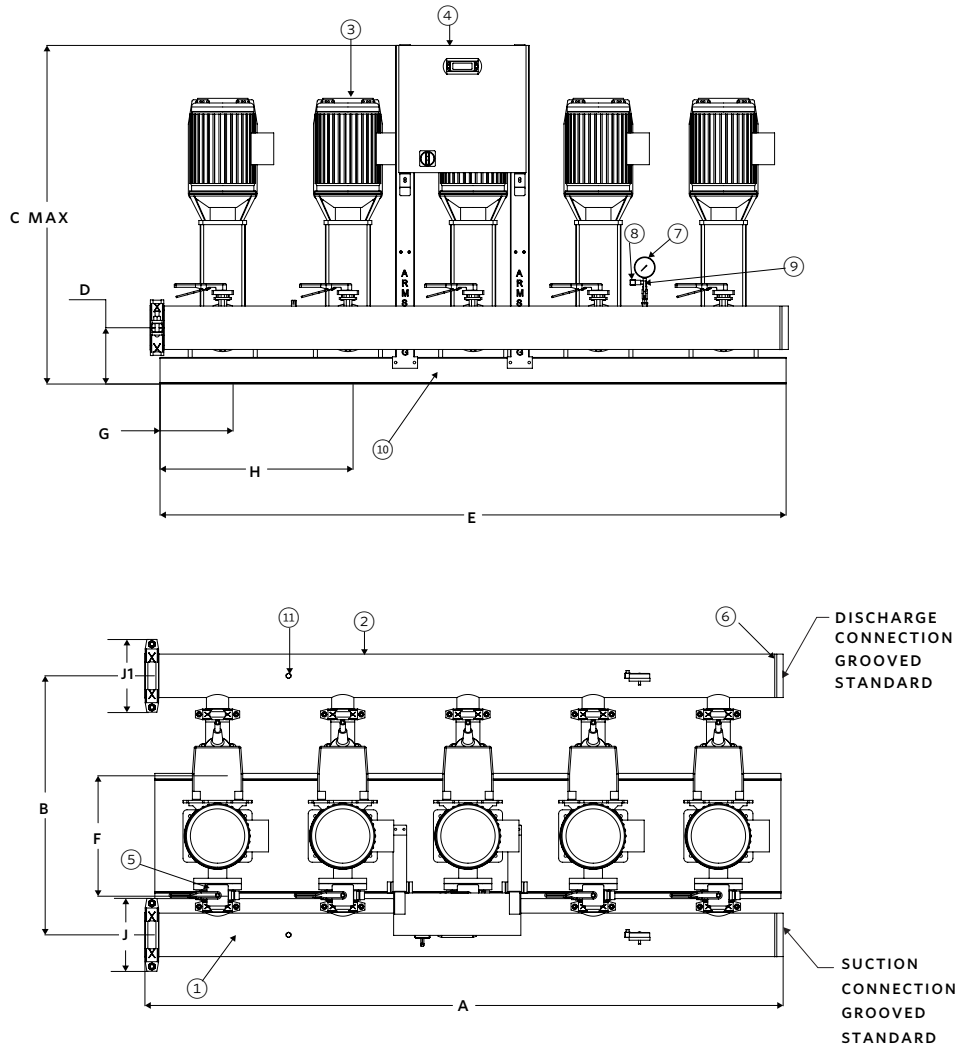


NOTE: Pump curves are shown for information purpose only and should not be used for selection. Individual pump curves don't represent the performance of a complete package as they ignore losses and control constraints. Please refer to **Curves and diagrams** on Armstrong's website for a detailed performance envelope for the specific booster model.

PERFORMANCE CURVE - VMS 64



NOTE: Pump curves are shown for information purpose only and should not be used for selection. Individual pump curves don't represent the performance of a complete package as they ignore losses and control constraints. Please refer to **Curves and diagrams** on Armstrong's website for a detailed performance envelope for the specific booster model.



Quinteplex Domestic Cold Water Booster

ITEM	DESCRIPTION
①	Stainless steel suction header
②	Stainless steel discharge header
③	Pump with integrated ivs controls
④	Control panel with plc
⑤	Suction isolation valve
⑥	Grooved connection
⑦	Pressure gauge
⑧	Pressure transducer
⑨	Pressure gauge isolation valve
⑩	Stainless steel base and panel support
⑪	Plug pipe
⑫	Flo-Trex valve

DUTY-DUTY MODELS		DUTY-STANDBY MODELS		A	B	C MAX	D	E	F	G	H	J	J1	CONNECTION SIZE	MAX WORKING PRESSURE	DE WEIGHT	DEPM WEIGHT
DE	DEPM	DE	DEPM														
<input type="checkbox"/> N550222	-	<input type="checkbox"/> N450222S	-	120.21 (3053)	41.75 (1060)	63.88 (1623)	9.24 (235)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	11.00 (279)	11.00 (279)	6	232 (16)	2574 (1168)	-
<input type="checkbox"/> N550322	-	<input type="checkbox"/> N450322S	-	120.21 (3053)	41.75 (1060)	63.88 (1623)	9.24 (235)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	11.00 (279)	11.00 (279)	6	232 (16)	3229 (1465)	-
<input type="checkbox"/> N550432	-	<input type="checkbox"/> N450432S	-	120.21 (3053)	41.75 (1060)	63.88 (1623)	9.24 (235)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	11.00 (279)	11.00 (279)	6	232 (16)	3293 (1494)	-
<input type="checkbox"/> N550502	-	<input type="checkbox"/> N450502S	-	120.21 (3053)	43.75 (1111)	63.88 (1623)	9.24 (235)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	11.00 (279)	12.50 (318)	6	363 (25)	3861 (1751)	-
<input type="checkbox"/> N550602	-	<input type="checkbox"/> N450602S	-	120.21 (3053)	43.75 (1111)	64.58 (1640)	9.24 (235)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	11.00 (279)	12.50 (318)	6	363 (25)	4922 (2233)	-
<input type="checkbox"/> N560102	-	<input type="checkbox"/> N460102S	-	120.40 (3058)	45.85 (1165)	63.88 (1623)	10.62 (270)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	13.50 (343)	13.50 (343)	8	232 (16)	2906 (1318)	-
<input type="checkbox"/> N560212	-	<input type="checkbox"/> N460212S	-	120.40 (3058)	45.85 (1165)	63.88 (1623)	10.62 (270)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	13.50 (343)	13.50 (343)	8	232 (16)	3591 (1629)	-
<input type="checkbox"/> N560412	-	<input type="checkbox"/> N460412S	-	120.40 (3058)	45.85 (1165)	66.41 (1687)	10.62 (270)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	13.50 (343)	13.50 (343)	8	232 (16)	5340 (2422)	-
<input type="checkbox"/> N560502	-	<input type="checkbox"/> N460502S	-	120.40 (3058)	47.85 (1215)	70.91 (1801)	10.62 (270)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	13.50 (343)	15.00 (381)	8	363 (25)	6598 (2993)	-
<input type="checkbox"/> N570102	-	<input type="checkbox"/> N470102S	-	120.40 (3058)	48.87 (1241)	63.88 (1623)	10.62 (270)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	13.50 (343)	13.50 (343)	1	232 (16)	4039 (1832)	-
<input type="checkbox"/> N570212	-	<input type="checkbox"/> N470212S	-	120.40 (3058)	48.87 (1241)	63.88 (1623)	10.62 (270)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	13.50 (343)	13.50 (343)	1	232 (16)	4610 (2091)	-
<input type="checkbox"/> N570322	-	<input type="checkbox"/> N470322S	-	120.40 (3058)	48.87 (1241)	63.88 (1623)	10.62 (270)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	13.50 (343)	13.50 (343)	1	232 (16)	5725 (2597)	-
<input type="checkbox"/> N570422	-	<input type="checkbox"/> N470422S	-	120.40 (3058)	51.44 (1307)	67.21 (1707)	10.62 (270)	118.11 (3000)	22.72 (577)	13.78 (350)	36.42 (925)	13.50 (343)	15.00 (381)	1	363 (25)	6944 (3150)	-
<input type="checkbox"/> N580302	<input type="checkbox"/> PM580302	<input type="checkbox"/> N480302S	<input type="checkbox"/> PM480302S	108.21 (2749)	31.70 (805)	61.42 (1560)	6.19 (157)	99.61 (2530)	16.81 (427)	13.19 (335)	31.5 (800)	9.00 (229)	9.00 (229)	6	232 (16)	1507 (683)	1548 (702)
<input type="checkbox"/> N580402	<input type="checkbox"/> PM580402	<input type="checkbox"/> N480402S	<input type="checkbox"/> PM480402S	108.40 (2753)	33.82 (859)	61.42 (1560)	6.19 (157)	99.61 (2530)	16.81 (427)	13.19 (335)	31.50 (800)	11.00 (279)	11.00 (279)	6	232 (16)	1923 (872)	1769 (802)
<input type="checkbox"/> N580502	<input type="checkbox"/> PM580502	<input type="checkbox"/> N480502S	<input type="checkbox"/> PM480502S	108.40 (2753)	33.82 (859)	61.42 (1560)	6.19 (157)	99.61 (2530)	16.81 (427)	13.19 (335)	31.50 (800)	11.00 (279)	11.00 (279)	6	232 (16)	2360 (1070)	2205 (1000)
<input type="checkbox"/> N580702	-	<input type="checkbox"/> N480702S	-	108.21 (2749)	31.70 (805)	61.42 (1560)	6.19 (157)	99.61 (2530)	16.81 (427)	13.19 (335)	31.5 (800)	9.00 (229)	9.00 (229)	6	232 (16)	2337 (1060)	-
<input type="checkbox"/> N581002	-	<input type="checkbox"/> N481002S	-	108.21 (2749)	31.70 (805)	61.42 (1560)	6.19 (157)	99.61 (2530)	16.81 (427)	13.19 (335)	31.5 (800)	9.00 (229)	10.00 (254)	6	363 (25)	2853 (1294)	-
<input type="checkbox"/> N590102	<input type="checkbox"/> PM590102	<input type="checkbox"/> N490102S	<input type="checkbox"/> PM490102S	108.21 (2749)	31.70 (805)	61.42 (1560)	6.19 (157)	99.61 (2530)	16.81 (427)	13.19 (335)	31.5 (800)	9.00 (229)	9.00 (229)	6	232 (16)	1404 (637)	1105 (501)
<input type="checkbox"/> N590202	<input type="checkbox"/> PM590202	<input type="checkbox"/> N490202S	<input type="checkbox"/> PM490202S	108.21 (2749)	31.7 (805)	61.42 (1560)	6.19 (157)	99.61 (2530)	16.81 (427)	13.19 (335)	31.5 (800)	9.00 (229)	9.00 (229)	6	232 (16)	1406 (638)	1449 (657)

Note:

1 Tolerances are ±1/2" (12 mm) unless otherwise specified

2 Dimensions are based on boosters shipped with headers installed. Dimensions and weight for Optional

Header Shipped Loose available upon request

TORONTO

23 BERTRAND AVENUE
TORONTO, ONTARIO
CANADA, M1L 2P3
+1 416 755 2291

BUFFALO

93 EAST AVENUE
NORTH TONAWANDA, NEW YORK
U.S.A., 14120-6594
+1 716 693 8813

DROITWICH SPA

POINTON WAY,
STONEBRIDGE CROSS BUSINESS PARK
DROITWICH SPA, WORCESTERSHIRE
UNITED KINGDOM, WR9 0LW
+44 8444 145 145

MANCHESTER

WOLVERTON STREET
MANCHESTER
UNITED KINGDOM, M11 2ET
+44 8444 145 145

BANGALORE

#59, FIRST FLOOR, 3RD MAIN
MARGOSA ROAD, MALLESWARAM
BANGALORE, INDIA, 560 003
+91 80 4906 3555

SHANGHAI

UNIT 903, 888 NORTH SICHUAN RD.
HONGKOU DISTRICT, SHANGHAI
CHINA, 200085
+86 21 5237 0909

SÃO PAULO

RUA JOSÉ SEMIÃO RODRIGUES AGOSTINHO,
1370 GALPÃO 6 EMBU DAS ARTES
SAO PAULO, BRAZIL
+55 11 4785 1330

LYON

93 RUE DE LA VILLETTE
LYON, 69003 FRANCE
+33 4 26 83 78 74

DUBAI

JAFZA VIEW 19, OFFICE 402
P.O.BOX 18226 JAFZA,
DUBAI - UNITED ARAB EMIRATES
+971 4 887 6775

MANNHEIM

DYNAMOSTRASSE 13
68165 MANNHEIM
GERMANY
+49 621 3999 9858

JIMBOLIA

STR CALEA MOTILOR NR. 2C
JIMBOLIA 305400, JUD.TIMIS
ROMANIA
+40 256 360 030

ARMSTRONG FLUID TECHNOLOGY
ESTABLISHED 1934

ARMSTRONGFLUIDTECHNOLOGY.COM