

MTA

Single-stage coolant pump
60 Hz



1. Product introduction	3
2. Applications	3
3. Performance range	4
4. Product range	5
5. Identification	6
Nameplate	6
Type key	6
6. Construction	7
MTA 30, 60, 90, 20H, 40H, 70H	7
MTA 120, 200, 100H	8
7. Technical data	9
Pumped liquids	9
Temperatures	9
Maximum number of starts	9
Sound pressure level	9
Vibration level	9
Electrical data	9
8. Installation	10
Liquid level	10
Terminal box positions	11
9. Performance curves/technical data	12
MTA 30	12
MTA 60	14
MTA 90	16
MTA 120	18
MTA 200	20
MTA 20H	22
MTA 40H	24
MTA 70H	26
MTA 100H	28
10. Further product documentation	30
WebCAPS	30
WinCAPS	31

1. Product introduction

This data booklet describes MTA and MTA-H pumps.



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Grundfos' MTA range of single-stage immersible pumps has been designed especially for filtering systems in the machine tool industry. These low-pressure pumps are available in nine different variants and come with a choice of top suction or bottom suction. The pumps are designed to be mounted on top of tanks with the pump part immersed into the pumped liquid. The pump is designed to be maintenance free, and therefore does not contain shaft seals or other wear parts.

2. Applications

Applications

The MTA pumps are suitable for these applications:

- boring
- sawing
- milling
- grinding
- filtration.

Multiple applications

The compact MTA pumps efficiently transport liquid containing chips, fibres and abrasive particles to the filtering unit. Semi-open impellers allow the passing of chips up to 0.39 inches, making the pumps ideal for removing liquid from machining processes.

Other Grundfos machine tool pumps

Grundfos also offers a wide range of high-pressure machine tool pumps, offering unsurpassed accuracy and stability ensuring that nothing interferes with the delicate machining process. High efficiency minimizes the heat input into the cooling lubricant.

Pumps suitable for high-pressure machine tool applications are the immersible MTR, SPK and MTH, all designed for tank mounting.

3. Performance range

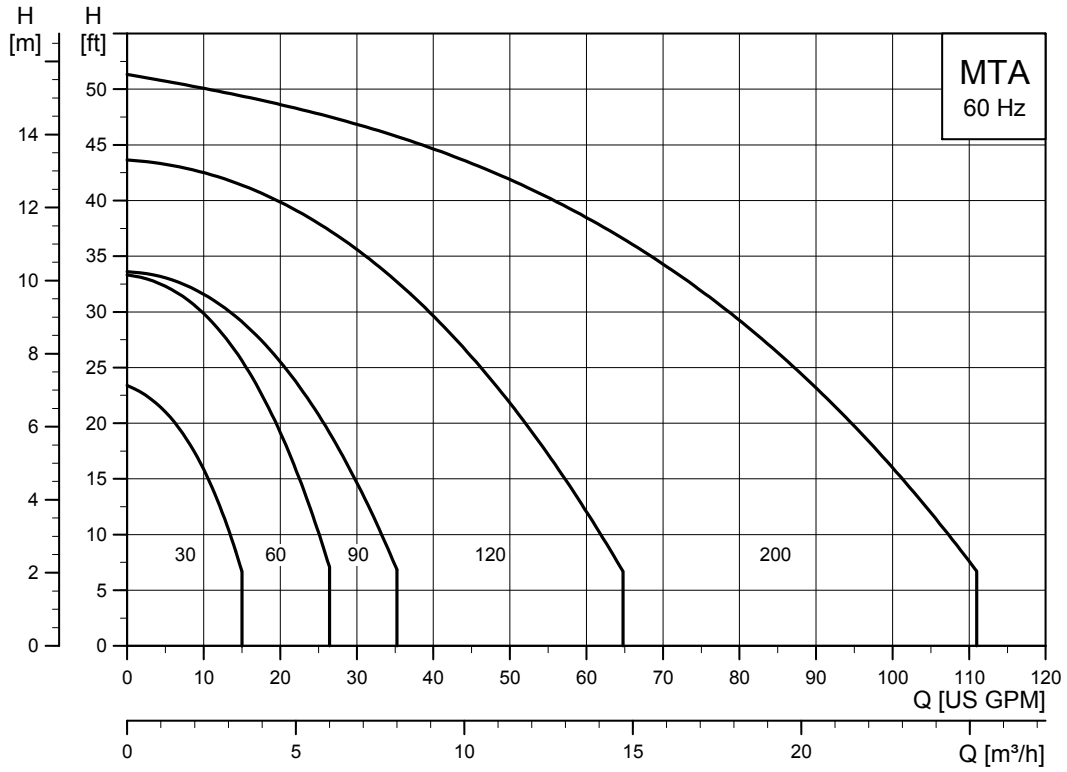


Fig. 1 Performance range, MTA, 60 Hz

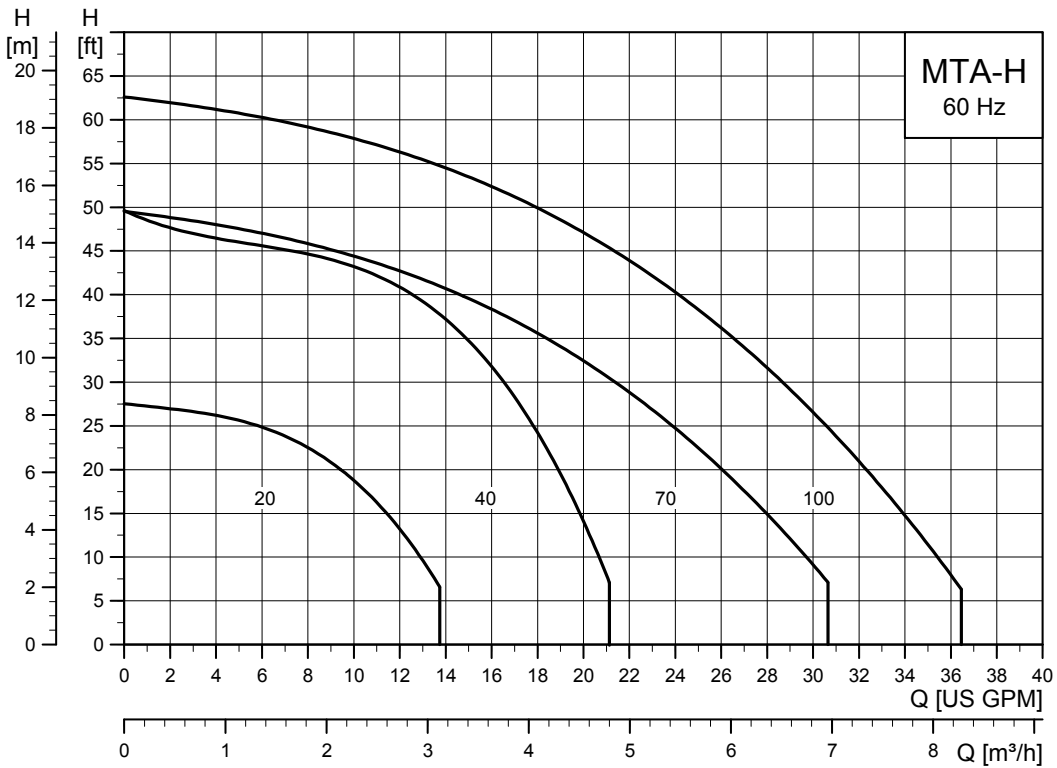


Fig. 2 Performance range, MTA-H, 60 Hz

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4. Product range

Pump type	MTA 30	MTA 60	MTA 90	MTA 120	MTA 200	MTA 20H	MTA 40H	MTA 70H	MTA 100H
Rated flow rate [gpm (l/min)]	9.25 (35)	15.9 (60)	25.4 (96)	31.7 (120)	66 (250)	6.3 (24)	11.1 (42)	19 (72)	28.5 (108)
Temperature range [°F (°C)]	0 to +60								
Flow range [gpm (l/min)]	0-14.8 (0-56)	0-26.4 (0-100)	0-35.4 (0-134)	0-64.7 (0-245)	0-111 (0-420)	0-13.7 (0-52)	0-21.4 (0-81)	0-30.1 (0-114)	0-36.5 (0-138)
Maximum head [ft (m)]	23.3 (7.1)	33.1 (10.1)	33.5 (10.2)	43.6 (13.3)	51.2 (15.6)	27.6 (8.4)	46.6 (14.2)	47.8 (14.6)	62.7 (19.1)
Motor power [W]	79-145	161-333	219-460	319-755	671-1340	75-145	185-375	198-452	327-725
Pipe connection									
Internal thread	1/2" NPT	3/4" NPT	3/4" NPT	1 1/4" NPT	1 1/2" NPT	1/2" NPT	3/4" NPT	3/4" NPT	1" NPT
Material									
Pump housing	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
Impeller	PAA GF50	PAA GF50	PAA GF50	PAA GF50	Bronze	Bronze	Bronze	Bronze	Bronze
Installation length [in (mm)]									
MTA	5.91 (150)	5.12-13.78 (130-350)	5.12-13.78 (130-350)	7.01-13.78 (180-350)	9.84-13.78 (250-350)	5.91 (150)	7.01 (180)	9.84 (250)	11.02 (280)
Suction									
Top suction	•	•	•	•	-	•	•	•	•
Bottom suction	•	•	•	•	•	-	-	-	-

5. Identification

Nameplate

1	Type	MTA 60-180	A-WB-A-B	
2	PN	97123456	Model A	
3	PC	1028	SN 0003	
4				
5				
6	CE			
7	f	60 Hz	f	60 Hz
8	U	3x208-230 V	U	460 V
9	I _{1/1}	1.2 A	I _{1/1}	0.7 A
10	I _{max}	1.5 A	I _{max}	0.8 A
11	P ₁	240 W	P ₁	246 W
12	n	3505 min ⁻¹	n	3510 min ⁻¹
13	Q _{nom}	10 GPM	Q _{nom}	10 GPM
14	H _{nom}	25 Feet	H _{nom}	25 Feet
15	Eff.	IE3 80.7 %	Eff.	IE3 77.0 %
16	IP	54	Rated P ₂	1/4 HP
17	Insulation class	F	t _{liq}	140 °F
18				
19				
20				
21				

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Fig. 3 Example of nameplate

Pos.	Designation
1	Production code (YYWW)
2	Product number
3	Type designation (see <i>Type key</i> , page 6)
4	Serial number
5	Model
6	Frequency
7	Supply voltage
8	Full load current
9	Max. current
10	Motor input power
11	Rated speed
12	Rated flow
13	Rated head
14	Efficiency class (applies only to MTA 200)
15	Motor enclosure class
16	Motor insulation class
17	Motor output power
18	Max. temperature of pumped liquid
19	Pipe connection
20	Motor drive-end bearing
21	Motor non-drive-end bearing

Type key

Example	MTA	60	H	-180	-A	-WB	-A	-B
Type range								
Rated flow [l/min]								
Pressure type								
Installation length [mm]. See fig. 4.								
Pump version								
A = Standard version								
Thread type								
WB = Internal NPT thread								
W = Internal Rp thread								
Impeller material								
A = PAA GF50								
B = Bronze								
Suction								
T = Top								
B = Bottom								

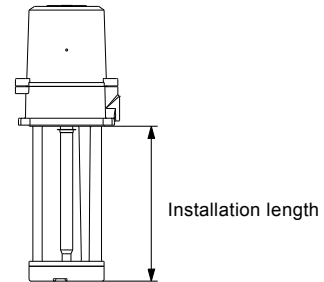
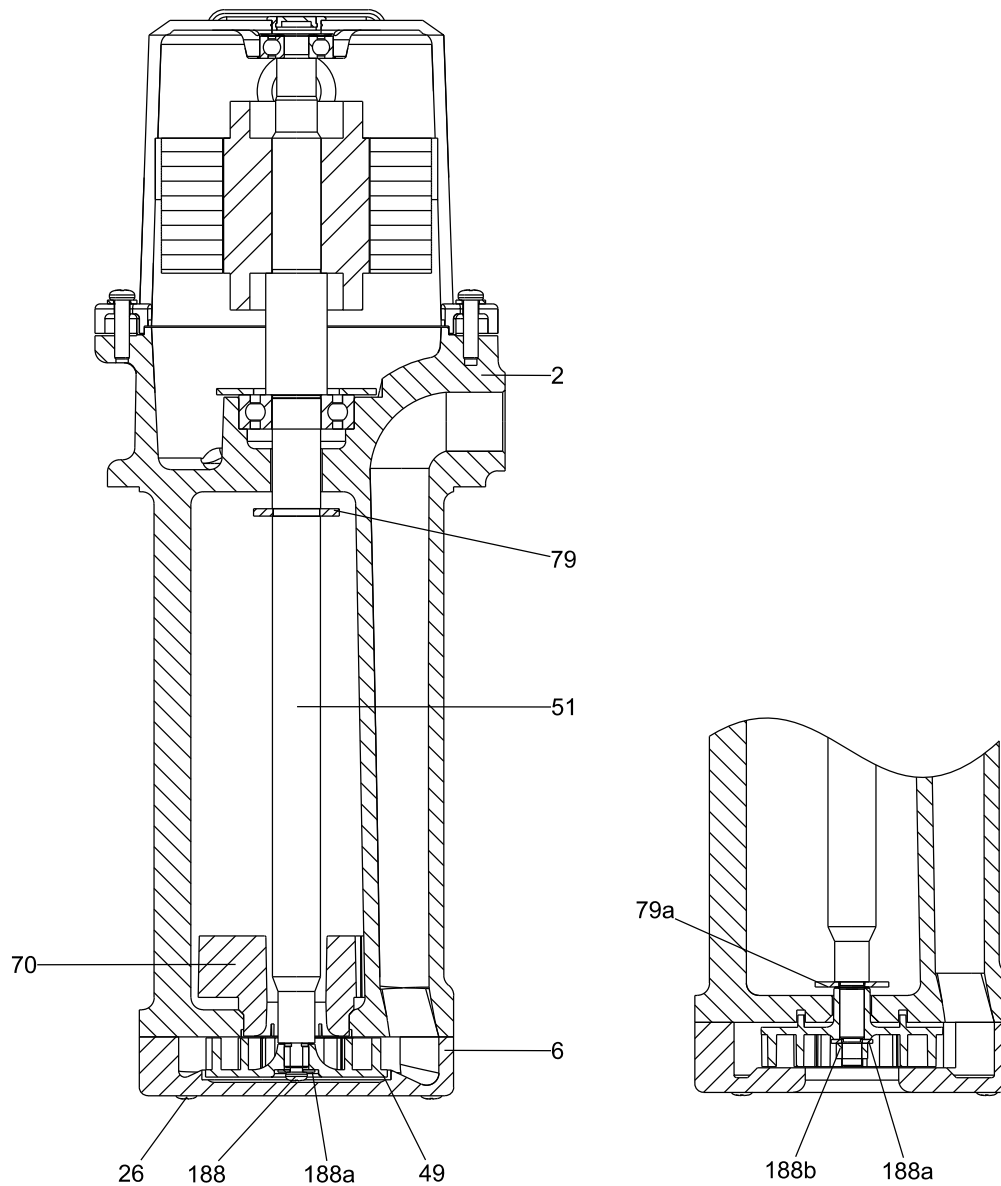


Fig. 4 Installation length

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6. Construction

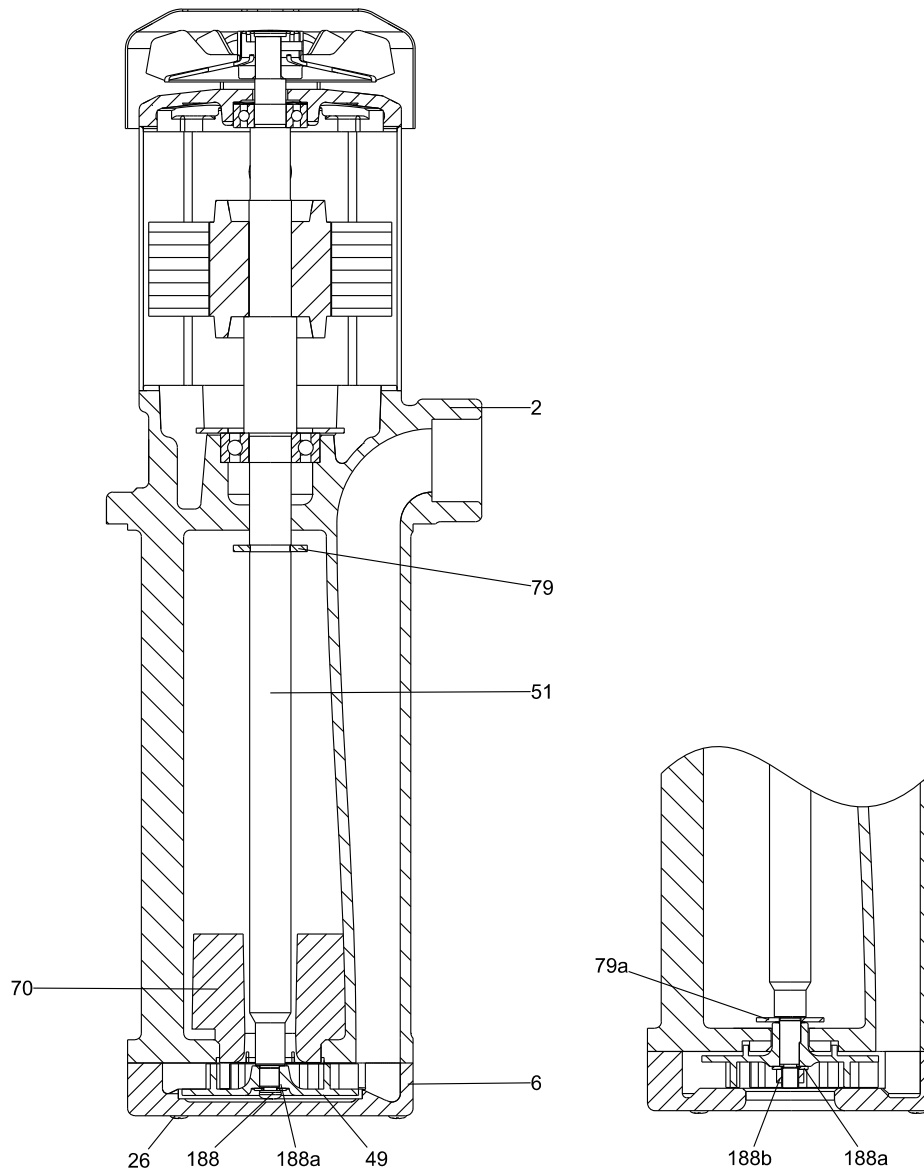
MTA 30, 60, 90, 20H, 40H, 70H



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Pos.	Description	Material	EN/DIN	AISI/ASTM	JIS
2	Pump head	Cast iron	GG20	A48-CL30	FC200
6	Pump housing	Cast iron	GG20	A48-CL30	FC200
26	Screw	Stainless steel	1.4301	A276-304	SUS304
49	Impeller	MTA 30, 60, 90	PAA GF50	-	-
		MTA 20H, 40H, 70H	Bronze casting	G-CuZn-5ZnPb	C92200
51	Shaft with rotor	Steel	C45	A108-1045	S45C
70	Vortex preventer	PP	-	-	-
79	Thrower	NBR	-	-	-
79a	Splash ring	Steel	1623 ST 12	A366	SPCC
188	Cross-head screw	Stainless steel	1.4301	A276-304	SUS304
188a	Washer	Stainless steel	1.4301	A276-304	SUS304
188b	Hexagon nut	Stainless steel	1.4301	A276-304	SUS304

MTA 120, 200, 100H



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Pos.	Description	Material	EN/DIN	AISI/ASTM	JIS
2	Pump head	Cast iron	GG20	A48-CL30	FC200
6	Pump housing	Cast iron	GG20	A48-CL30	FC200
26	Screw	Stainless steel	1.4301	A276-304	SUS304
49	Impeller	MTA 120	PAA GF50	-	-
		MTA 200, 100H	Bronze casting	G-CuZn-5ZnPb	C92200
51	Shaft with rotor	Steel	C45	A108-1045	S45C
70	Vortex preventer	PP	-	-	-
79	Thrower	NBR	-	-	-
79a	Splash ring	Steel	1623 ST 12	A366	SPCC
188	Cross-head screw	Stainless steel	1.4301	A276-304	SUS304
188a	Washer	Stainless steel	1.4301	A276-304	SUS304
188b	Hexagon nut	Stainless steel	1.4301	A276-304	SUS304

7. Technical data

Pumped liquids

Pump	Max. particle size [inch (mm)]
MTA 30 MTA 60	0.16-0.20 (4-5)
MTA 90 MTA 120 MTA 200	0.31-0.39 (8-10)
MTA 20H MTA 40H MTA 70H MTA 100H	0.16-0.20 (4-5)

Max. kinematic viscosity [cSt]: 90.

Temperatures

Permissible liquid temperature [°F (°C)]	+32 to +140 (0 to +60)
Maximum permissible ambient temperature during operation [°F (°C)]	+104 (+40)
Permissible ambient temperature during storage [°F (°C)]	-58 to +158 (-50 to +70)

Maximum number of starts

Recommended maximum number of starts per hour is 250.

Sound pressure level

Pump	Motor power [W]	[dB(A)]
MTA 30	100	< 45
MTA 60	180	< 45
MTA 90	250	< 45
MTA 120	400	< 62
MTA 200	750	< 62
MTA 20H	100	< 45
MTA 40H	180	< 45
MTA 70H	250	< 45
MTA 100H	400	< 62

Vibration level

Vibration velocity RMS < 0.07 in/s (1.8 mm/s).

Vibration to ISO 10816-1 class IB.

Electrical data

Power supply (tolerance ± 10 %)	60 Hz	3 x 208-230 / 460 YY V
Efficiency class	MTA 200, 750 W	IE3
Enclosure class to IEC 60034-5		IP54
Insulation class		F

Other voltages available

	50 Hz	3 x 200 Δ V
Power supply (tolerance ± 10 %)	60 Hz	3 x 200-220 Δ V
		3 x 220-240Δ /380-440 Y V
	50 Hz	3 x 220-240Δ / 380-415 Y V

We do not recommend operation via frequency converter.

8. Installation

Note: The MTA pumps can only be mounted in the vertical position.

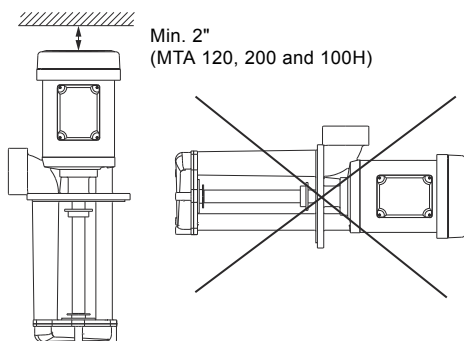


Fig. 5 Correct mounting position

For ventilation and cooling, a clearance of minimum 2" (50 mm) above the motor must be ensured. (applies only to MTA 120, 200 and 100H).

The pump is designed for indoor operation only. Liquids must not be sprayed directly on the motor.

Liquid level

MTA with top suction

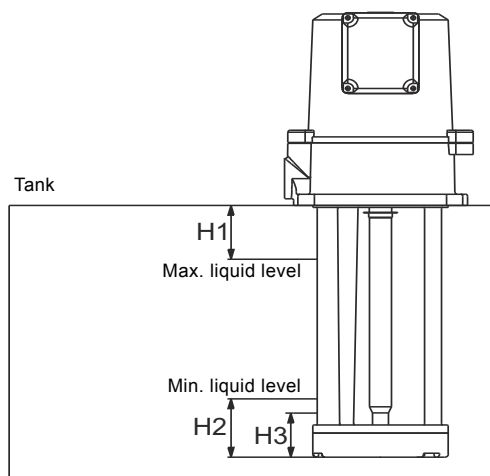


Fig. 6 MTA with top suction

Pump	H1 [inch (mm)]	H2 * [inch (mm)]	H3 ** [inch (mm)]
MTA 30	0.59 (15)	2.36 (60)	1.97 (50)
MTA 60	0.79 (20)	2.76 (70)	1.77 (45)
MTA 90	0.79 (20)	3.35 (85)	2.28 (58)
MTA 120	0.79 (20)	4.33 (110)	2.76 (70)
MTA 20H	0.59 (15)	1.97 (50)	1.57 (40)
MTA 40H	0.79 (20)	2.76 (70)	1.57 (40)
MTA 70H	0.79 (20)	3.15 (80)	1.97 (50)
MTA 100H	0.79 (20)	4.34 (110)	2.36 (60)

* Min. liquid level (full performance)

** Min. permissible liquid level (reduced performance)

MTA with bottom suction

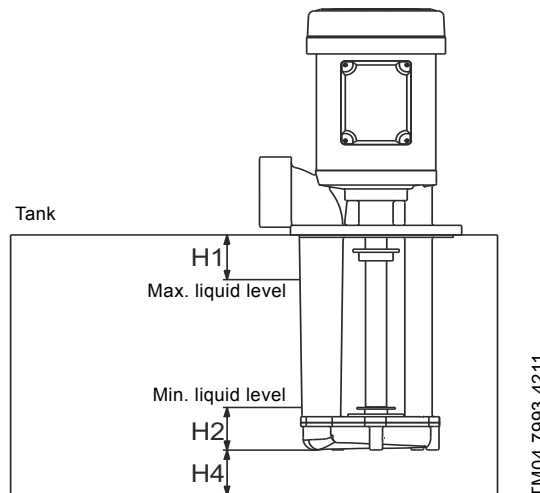


Fig. 7 MTA with bottom suction

Pump	H1 [inch (mm)]	H2 [inch (mm)]	H3 * [inch (mm)]
MTA 30	0.59 (15)	0.79 (20)	0.39 (10)
MTA 60	0.79 (20)	0.79 (20)	0.39 (10)
MTA 90	0.79 (20)	0.98 (25)	0.59 (15)
MTA 120	0.79 (20)	0.98 (25)	0.79 (20)
MTA 200	0.98 (25)	0.98 (50)	1.18 (30)

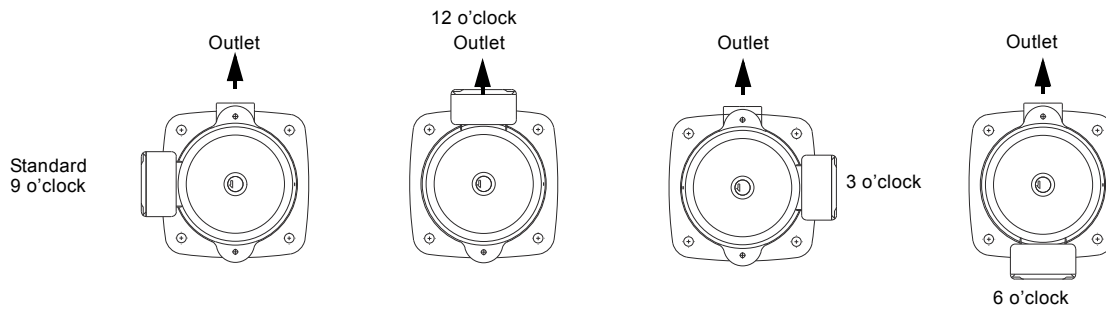
* Min. liquid level (full performance)

Terminal box positions

The terminal box of most of the MTA pump types can be turned to another position after delivery. See the table below.

Pump type	Motor power [W]	Terminal box positions			
		9 o'clock (standard)	12 o'clock	3 o'clock	6 o'clock
MTA 30	100	•			
MTA 60	180	•			
MTA 90	250	•			
MTA 120	400	•	(•)	(•)	(•)
MTA 200	750	•	(•)	(•)	(•)
MTA 20H	100	•			
MTA 40H	180	•			
MTA 70H	250	•			
MTA 100H	400	•	(•)	(•)	(•)

- The terminal box can be turned to another position after delivery.
- (•) The terminal box cannot be turned to another position after delivery. The pump must be ordered with the terminal box in the wanted position.

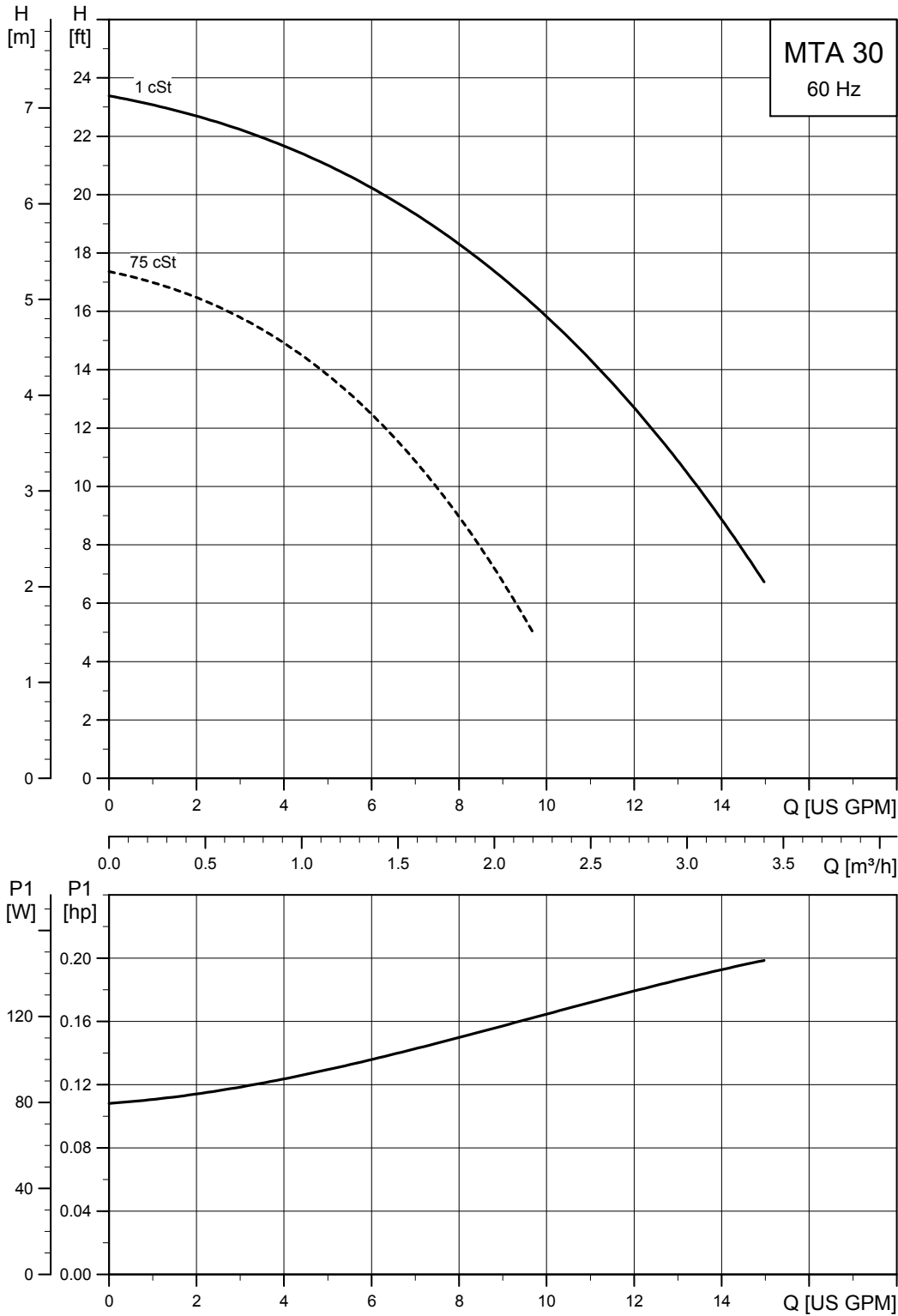


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Fig. 8 Possible terminal box positions

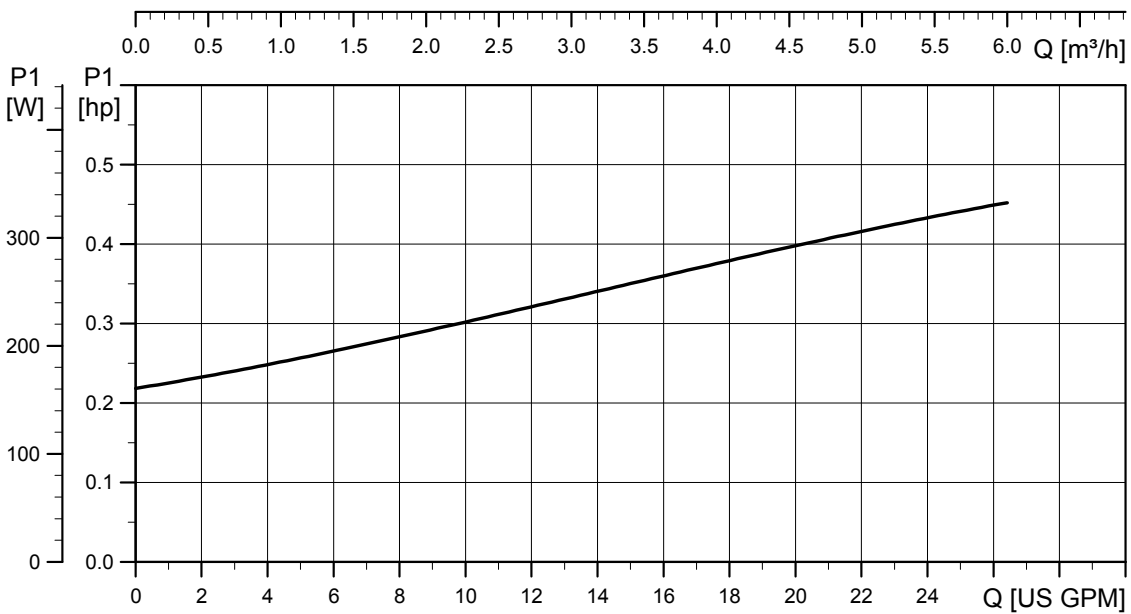
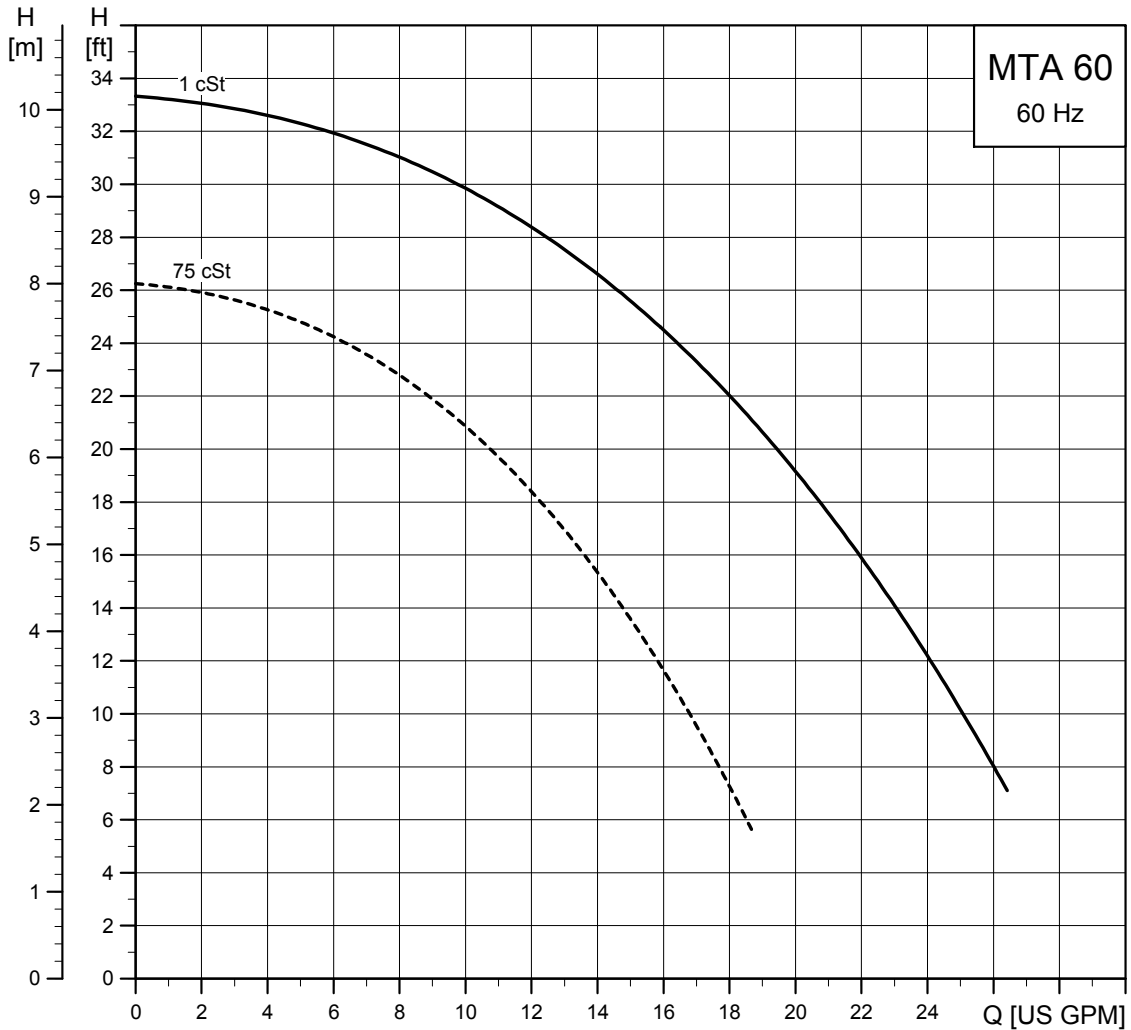
9. Performance curves/technical data

MTA 30



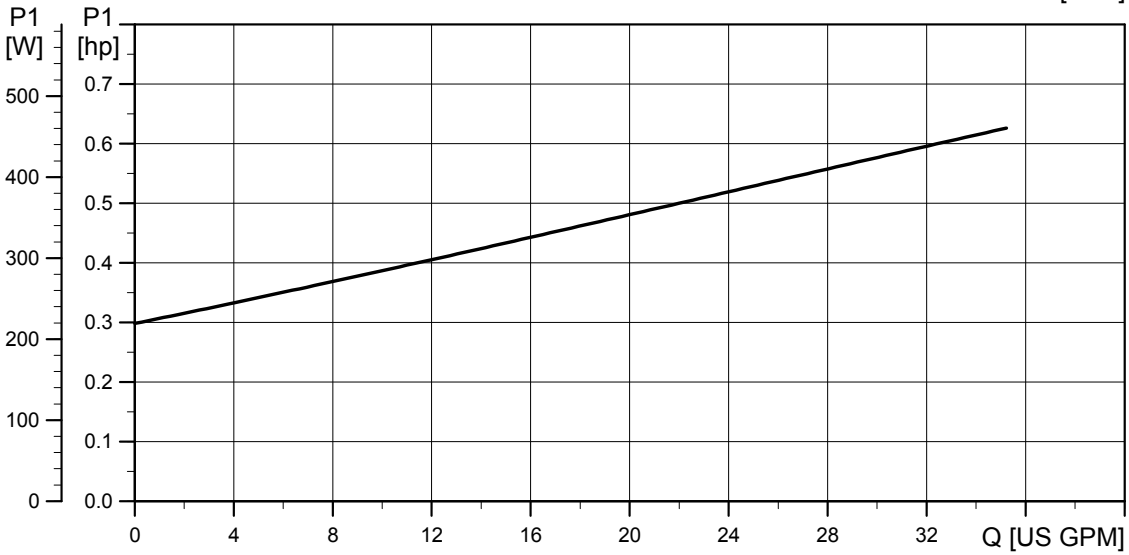
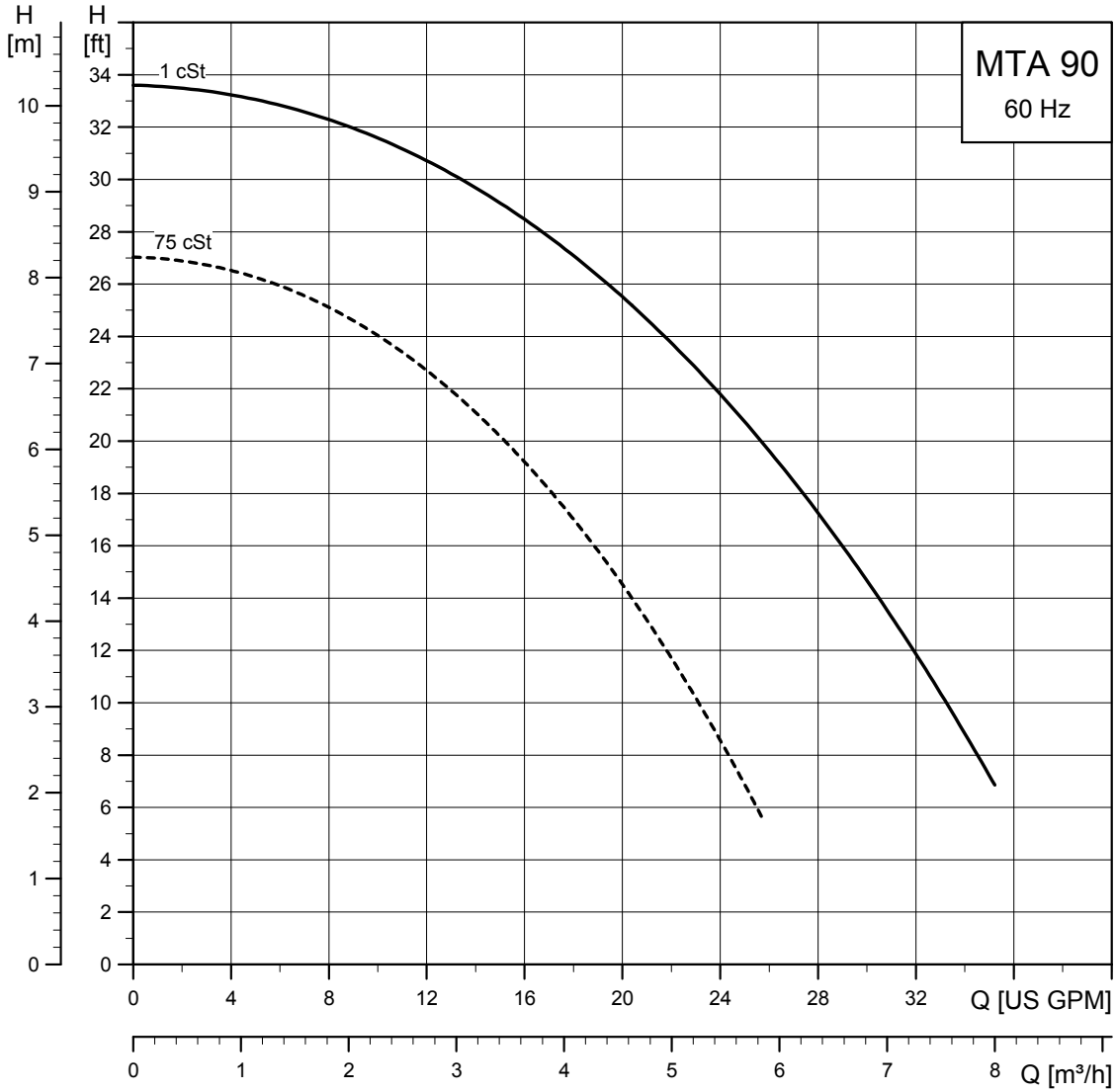
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MTA 60



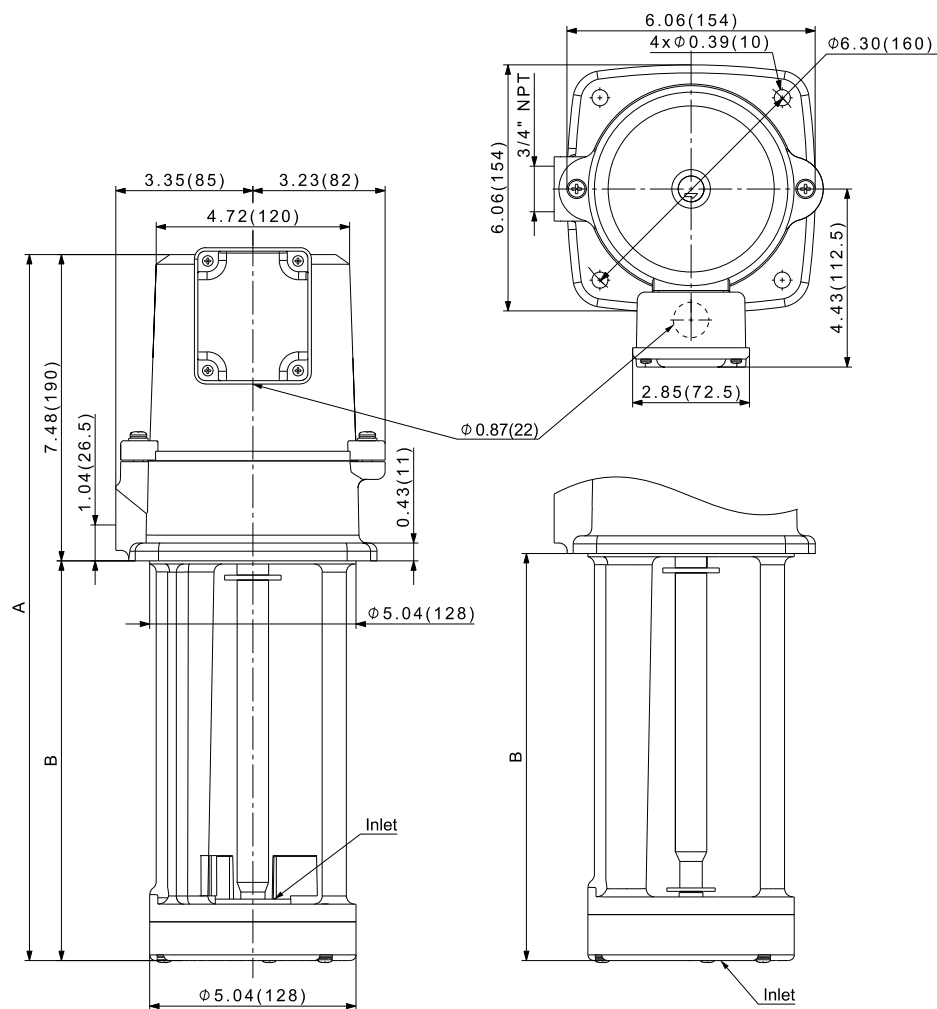
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MTA 90



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Dimensional sketches



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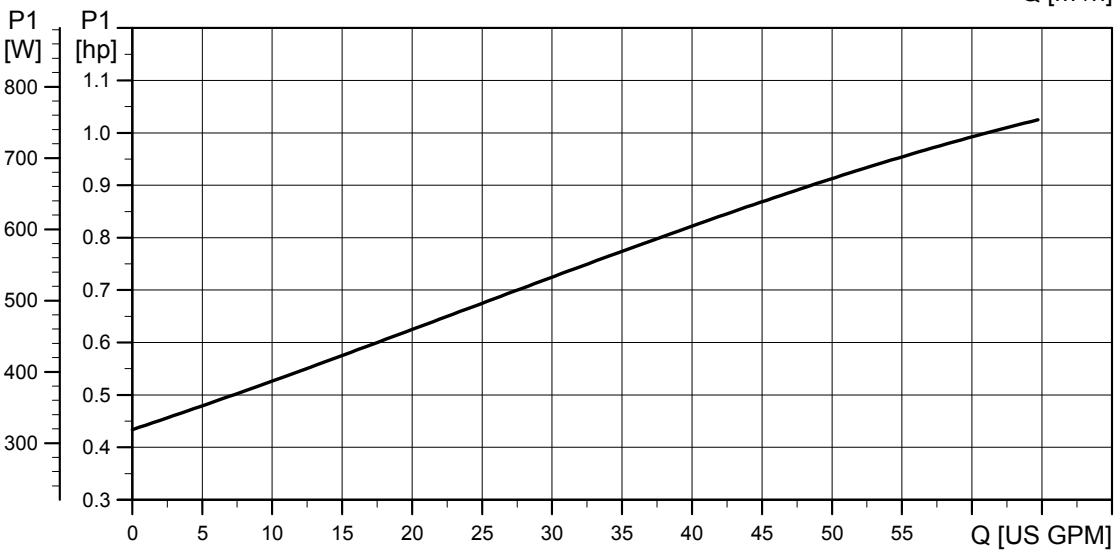
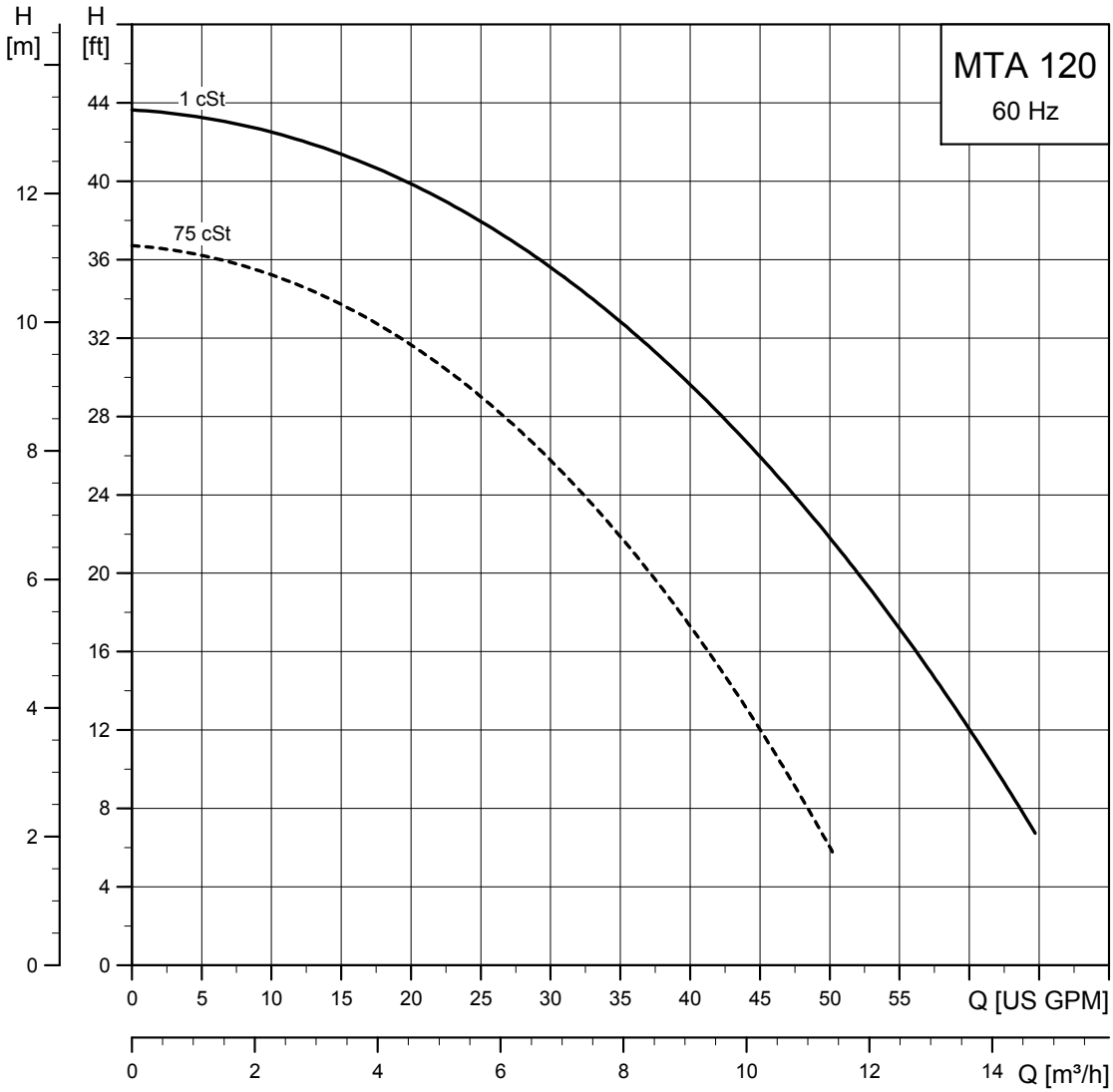
Dimensions and weights

Pump type	Suction	A [inch (mm)]	B [inch (mm)]	Net weight [lbs (kg)]	Gross weight [lbs (kg)]	Shipping volume [ft ³ (m ³)]
MTA 90-130	Top	12.52 (318)	5.04 (128)	27.78 (12.6)	31.31 (14.2)	0.6 (0.017)
MTA 90-180		14.49 (368)	7.01 (178)	29.32 (13.3)	33.29 (15.1)	0.71 (0.02)
MTA 90-250		17.24 (438)	9.76 (248)	31.31 (14.2)	35.71 (16.2)	0.81 (0.023)
MTA 90-350		21.18 (538)	13.7 (348)	34.39 (15.6)	39.46 (17.9)	0.95 (0.027)
MTA 90-130	Bottom	12.7 (322.5)	5.22 (132.5)	28.44 (12.9)	31.53 (14.3)	0.6 (0.017)
MTA 90-180		14.67 (372.5)	7.19 (182.5)	29.98 (13.6)	33.51 (15.2)	0.71 (0.02)
MTA 90-250		17.42 (442.5)	9.94 (252.5)	31.97 (14.5)	35.94 (16.3)	0.81 (0.023)
MTA 90-350		21.36 (542.5)	13.88 (352.5)	35.05 (15.9)	39.68 (18)	0.95 (0.027)

Electrical data

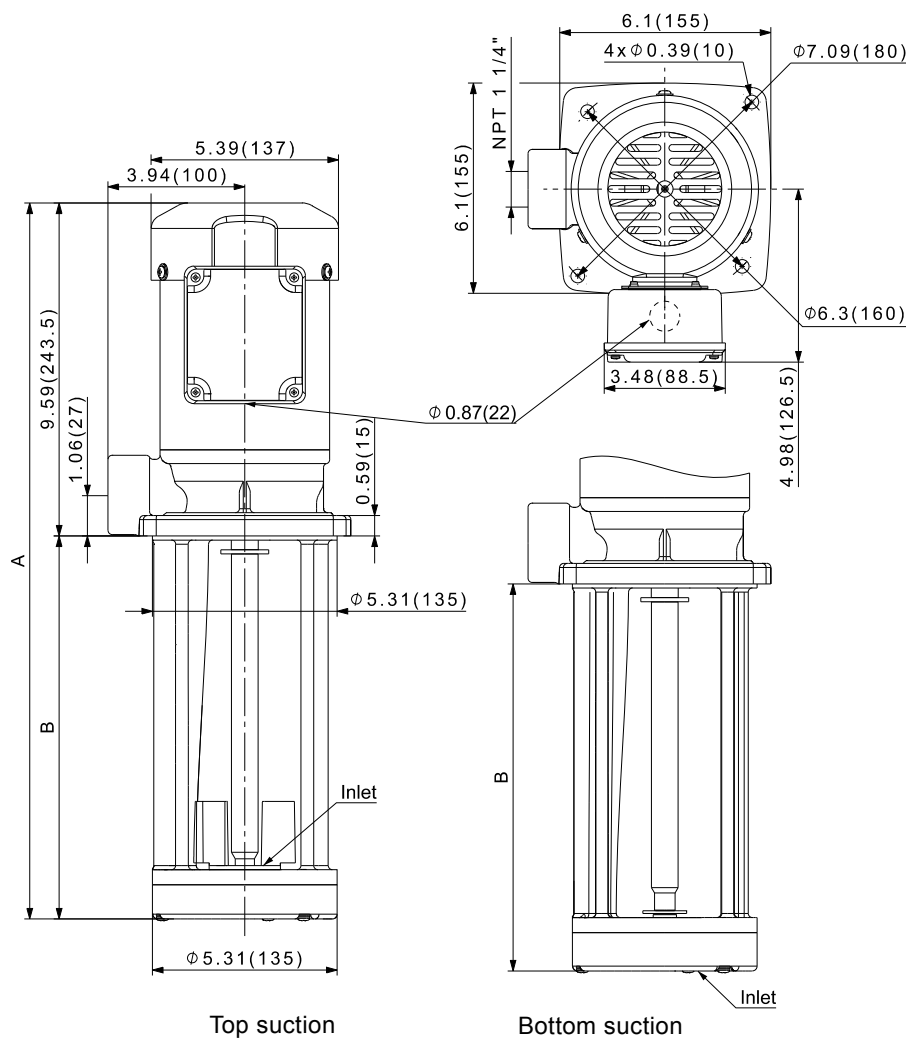
Voltage	Frequency [Hz]	P1 [W]	I _{1/1} [A]	I _{max} [A]	I _{start} / I _{1/1} [A]	Cos φ
3 x 208-230 YY V	60	438	1.5-1.4	1.73-1.61	-	0.81-0.79
3 x 460 Y V	60	438	0.7	0.81	-	0.79

MTA 120



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Dimensional sketches



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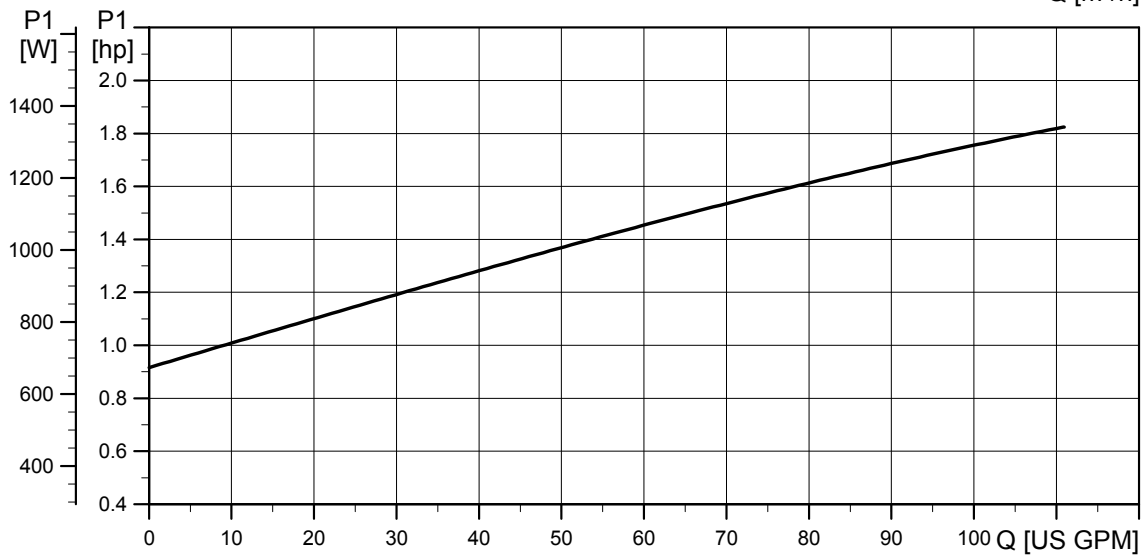
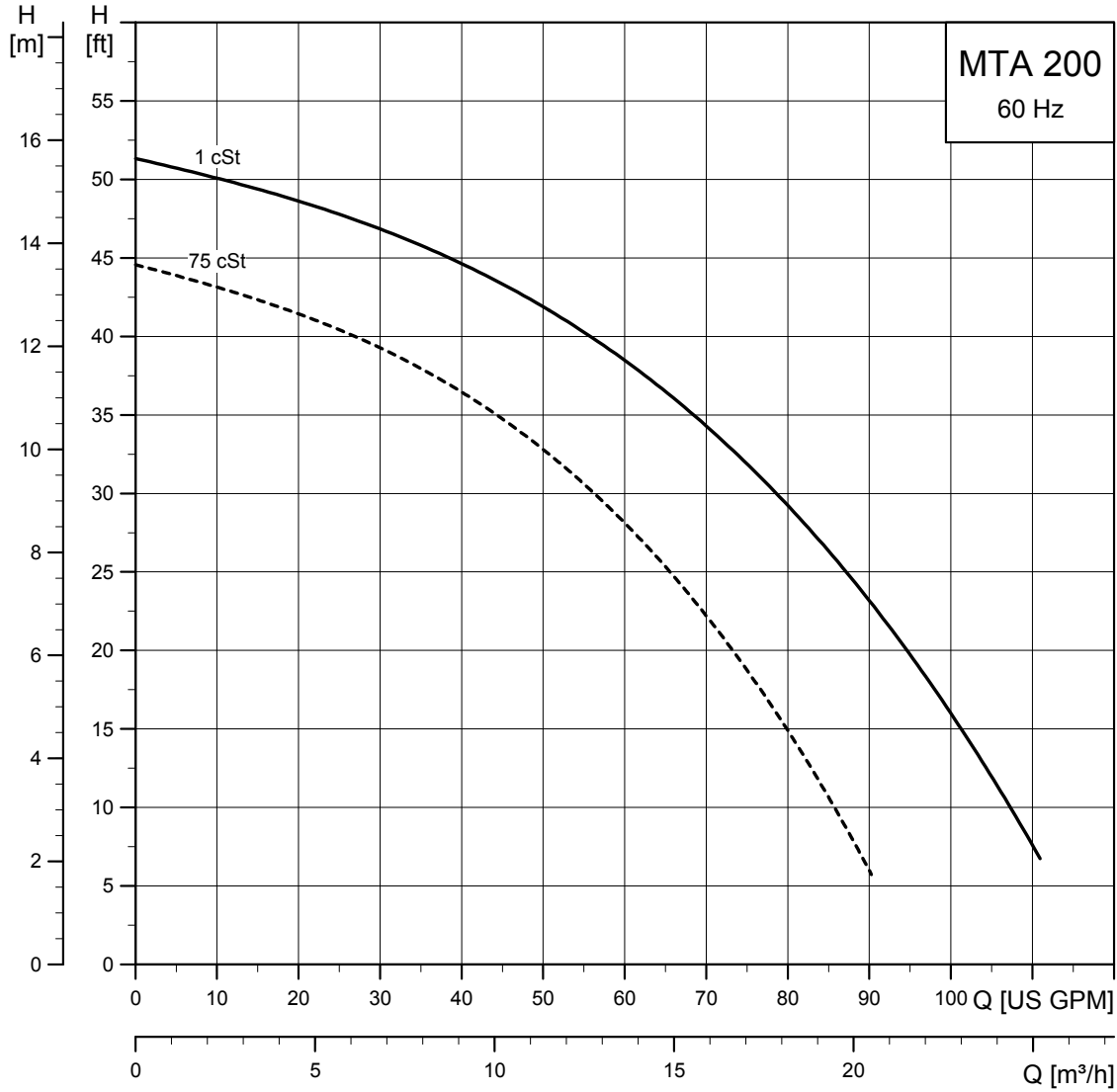
Dimensions and weights

Pump type	Suction	A [inch (mm)]	B [inch (mm)]	Net weight [lbs (kg)]	Gross weight [lbs (kg)]	Shipping volume [ft ³ (m ³)]
MTA 120-180	Top	16.67 (423.5)	7.09 (180)	34.83 (15.8)	38.58 (17.5)	0.92 (0.026)
MTA 120-250		19.43 (493.5)	9.84 (250)	37.26 (16.9)	41.89 (19)	1.13 (0.032)
MTA 120-280		20.61 (523.5)	11.02 (280)	38.36 (17.4)	42.77 (19.4)	1.13 (0.032)
MTA 120-350		23.37 (593.5)	13.78 (350)	40.57 (18.4)	47.4 (21.5)	1.27 (0.036)
MTA 120-180	Bottom	16.79 (426.5)	7.2 (183)	35.27 (16)	39.9 (18.1)	0.92 (0.026)
MTA 120-250		19.55 (496.5)	9.96 (253)	37.7 (17.1)	42.33 (19.2)	1.13 (0.032)
MTA 120-280		20.73 (526.5)	11.14 (283)	38.8 (17.6)	43.21 (19.6)	1.13 (0.032)
MTA 120-350		23.48 (596.5)	13.9 (353)	41.01 (18.6)	47.84 (21.7)	1.27 (0.036)

Electrical data

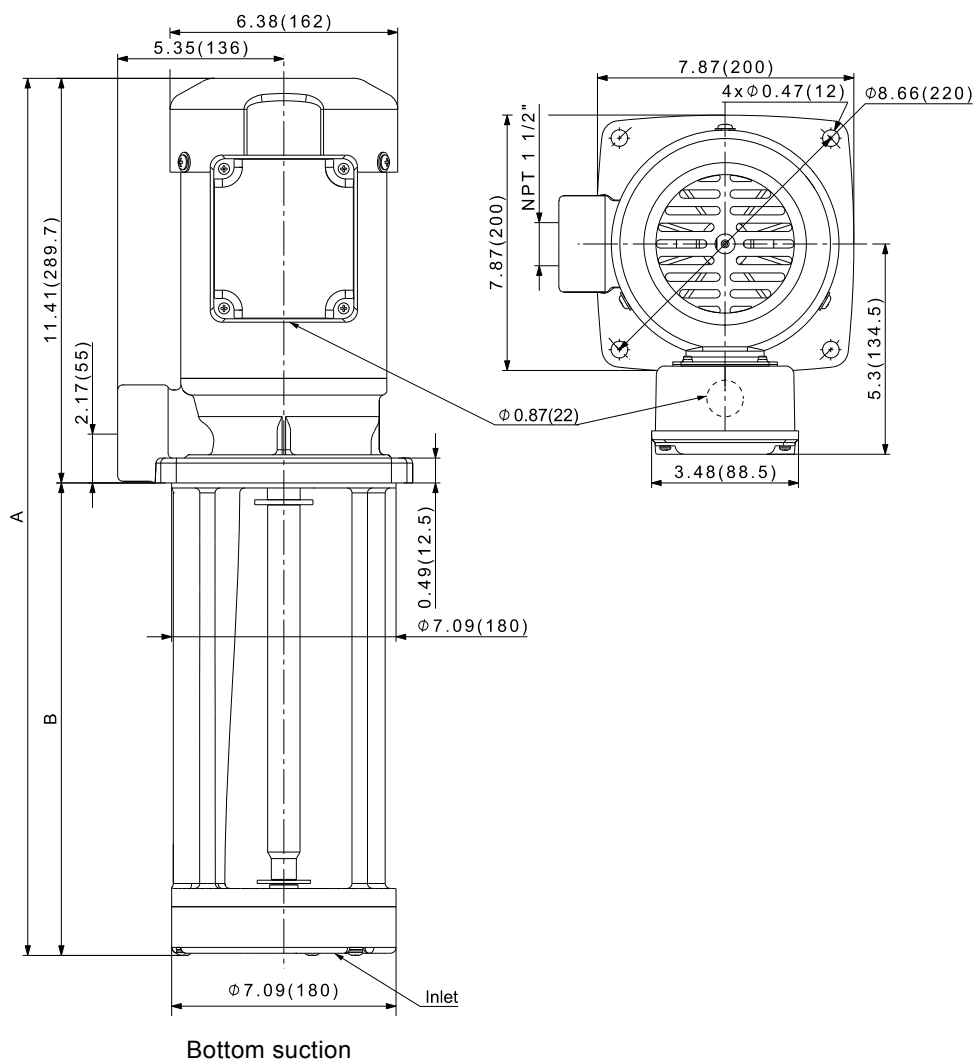
Voltage	Frequency [Hz]	P1 [W]	I _{1/1} [A]	I _{max} [A]	I _{start} / I _{1/1} [A]	Cos φ
3 x 208-230 YY V	60	700	2.16-2.13	2.48-2.45	-	0.9-0.82
3 x 460 Y V	60	700	1.07	1.23	-	0.82

MTA 200



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Dimensional sketches



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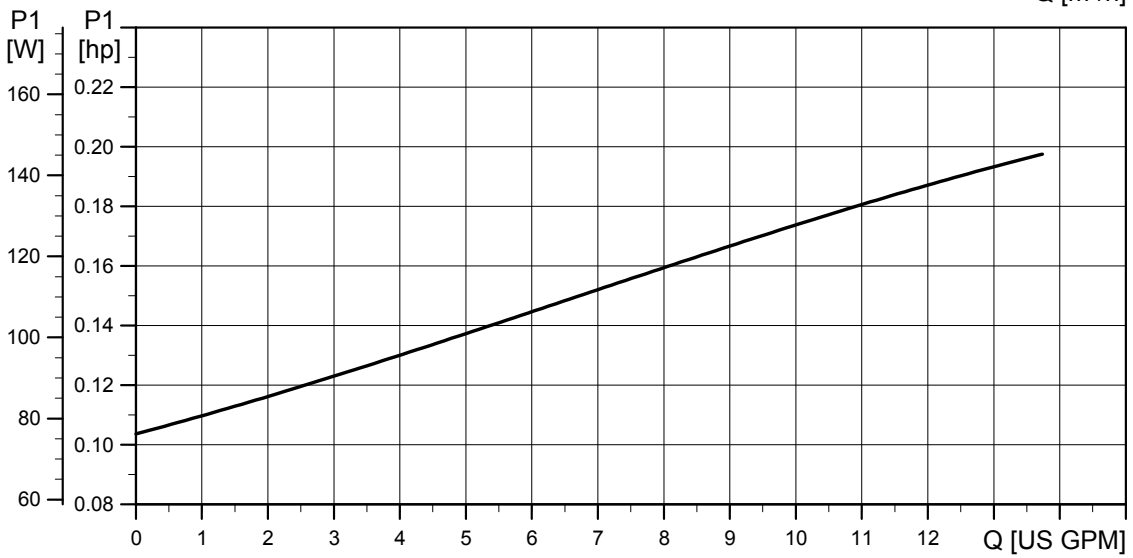
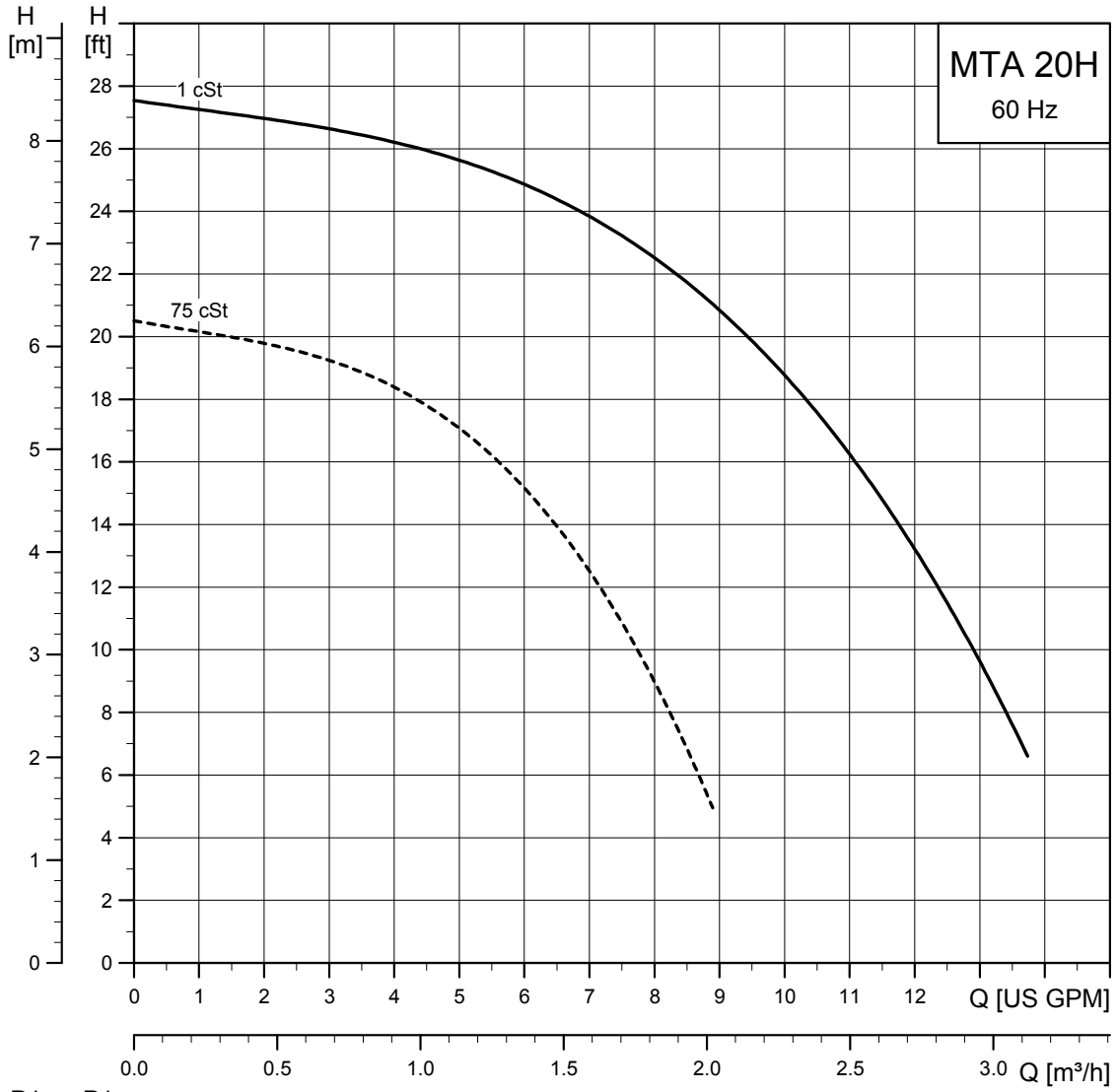
Dimensions and weights

Pump type	Suction	A [inch (mm)]	B [inch (mm)]	Net weight [lbs (kg)]	Gross weight [lbs (kg)]	Shipping volume [ft ³ (m ³)]
MTA 200-250	Bottom	21.05 (534.7)	9.84 (250)	53.57 (24.3)	59.3 (26.9)	2.12 (0.06)
MTA 200-280		22.23 (564.7)	11.02 (280)	54.67 (24.8)	60.41 (27.4)	2.12 (0.06)
MTA 200-350		24.99 (634.7)	13.78 (350)	56.88 (25.8)	63.05 (28.6)	2.37 (0.067)

Electrical data

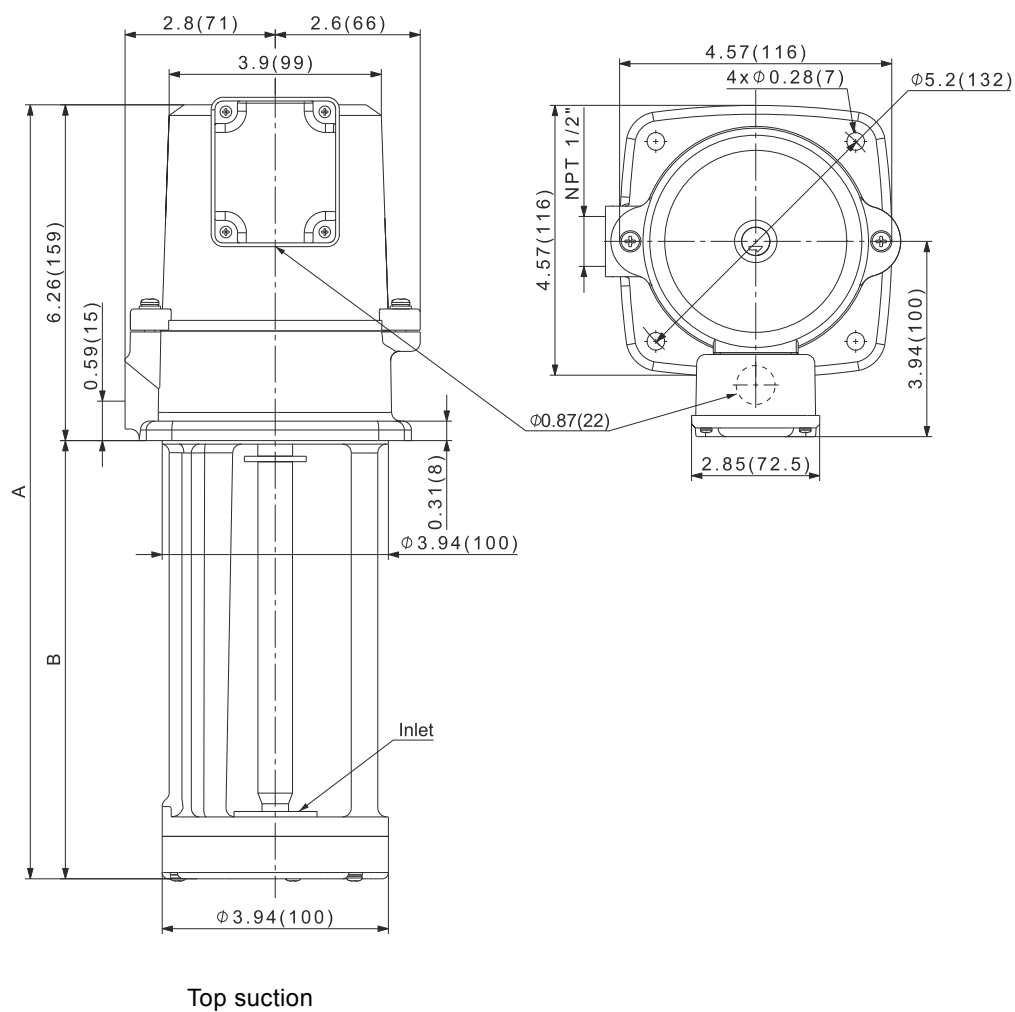
Voltage	Frequency [Hz]	P1 [W]	I _{1/1} [A]	I _{max} [A]	I _{start} / I _{1/1} [A]	Cos ϕ
3 x 208-230 YY V	60	1240	3.89-3.68	4.47-4.23	-	0.88-0.85
3 x 460 Y V	60	1240	1.89	2.17	-	0.85

MTA 20H



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Dimensional sketches



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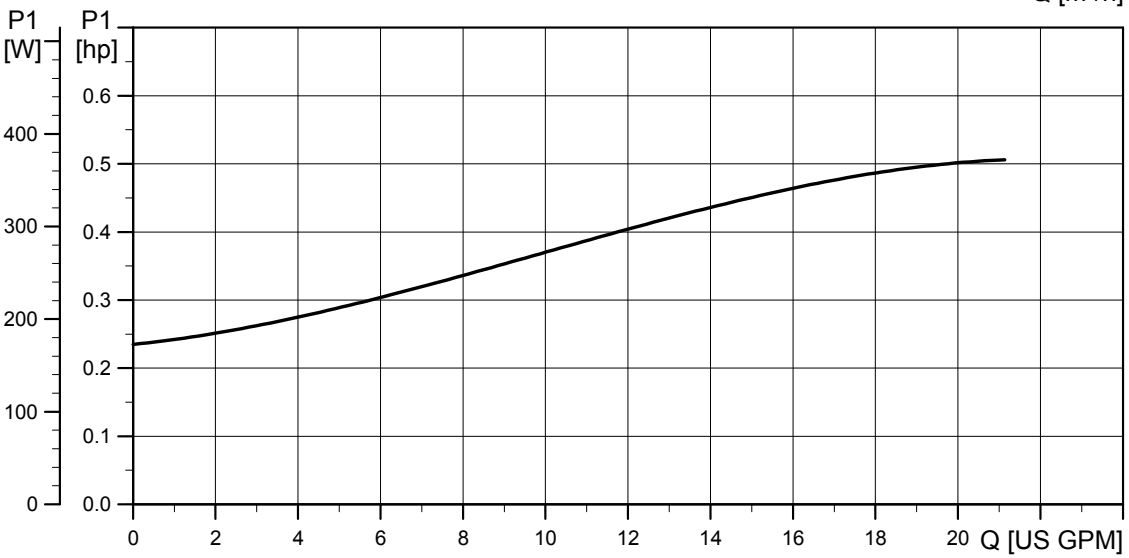
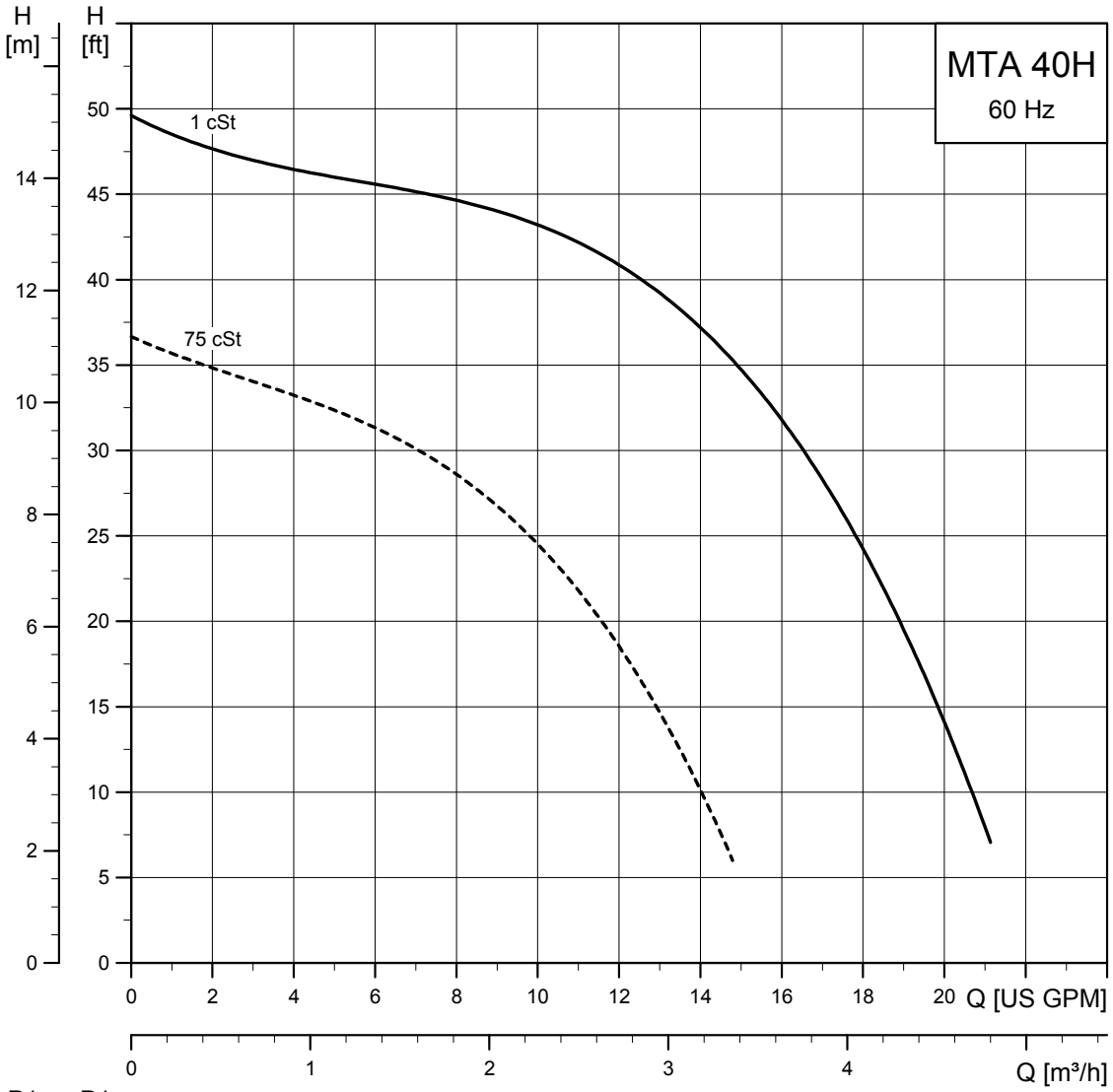
Dimensions and weights

Pump type	Suction	A [inch (mm)]	B [inch (mm)]	Net weight [lbs (kg)]	Gross weight [lbs (kg)]	Shipping volume [ft ³ (m ³)]
MTA 20H-150	Top	12.17 (309)	5.91 (150)	14.99 (6.8)	16.98 (7.7)	0.42 (0.012)

Electrical data

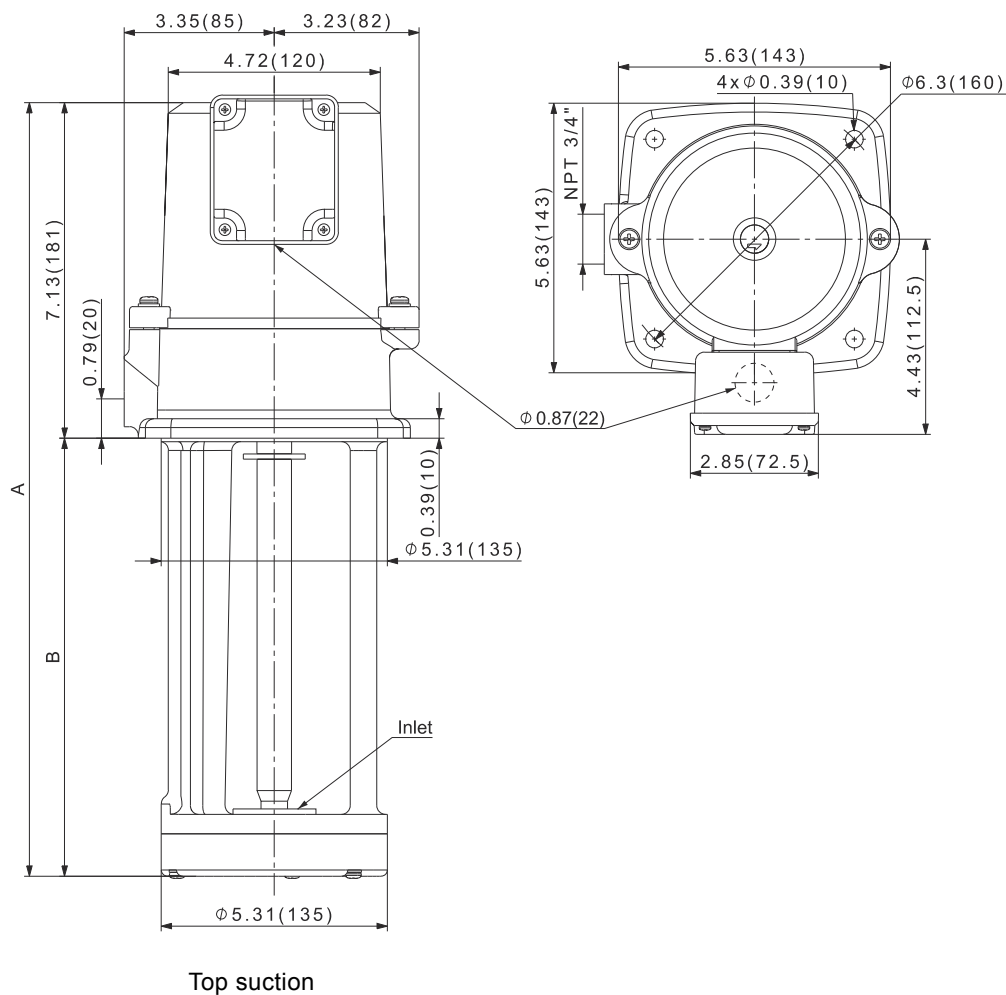
Voltage	Frequency [Hz]	P1 [W]	I _{1/1} [A]	I _{max} [A]	I _{start} / I _{1/1} [A]	Cos φ
3 x 208-230 YY V	60	150	0.44	0.51	-	0.95-0.86
3 x 460 Y V	60	150	0.23	0.26	-	0.86

MTA 40H



TM05 1743 3611

Dimensional sketches



TM05 1790 3711

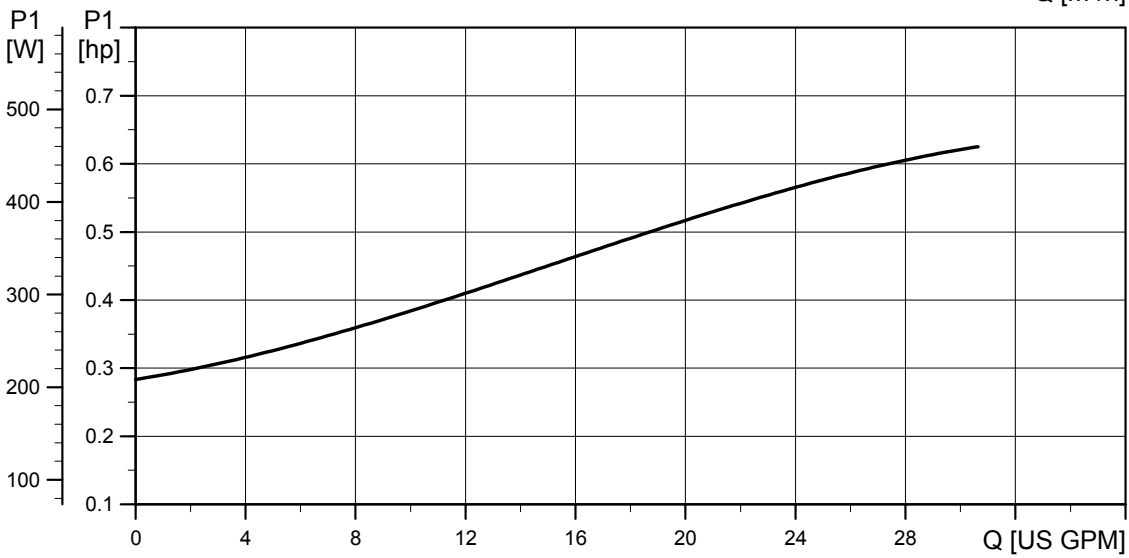
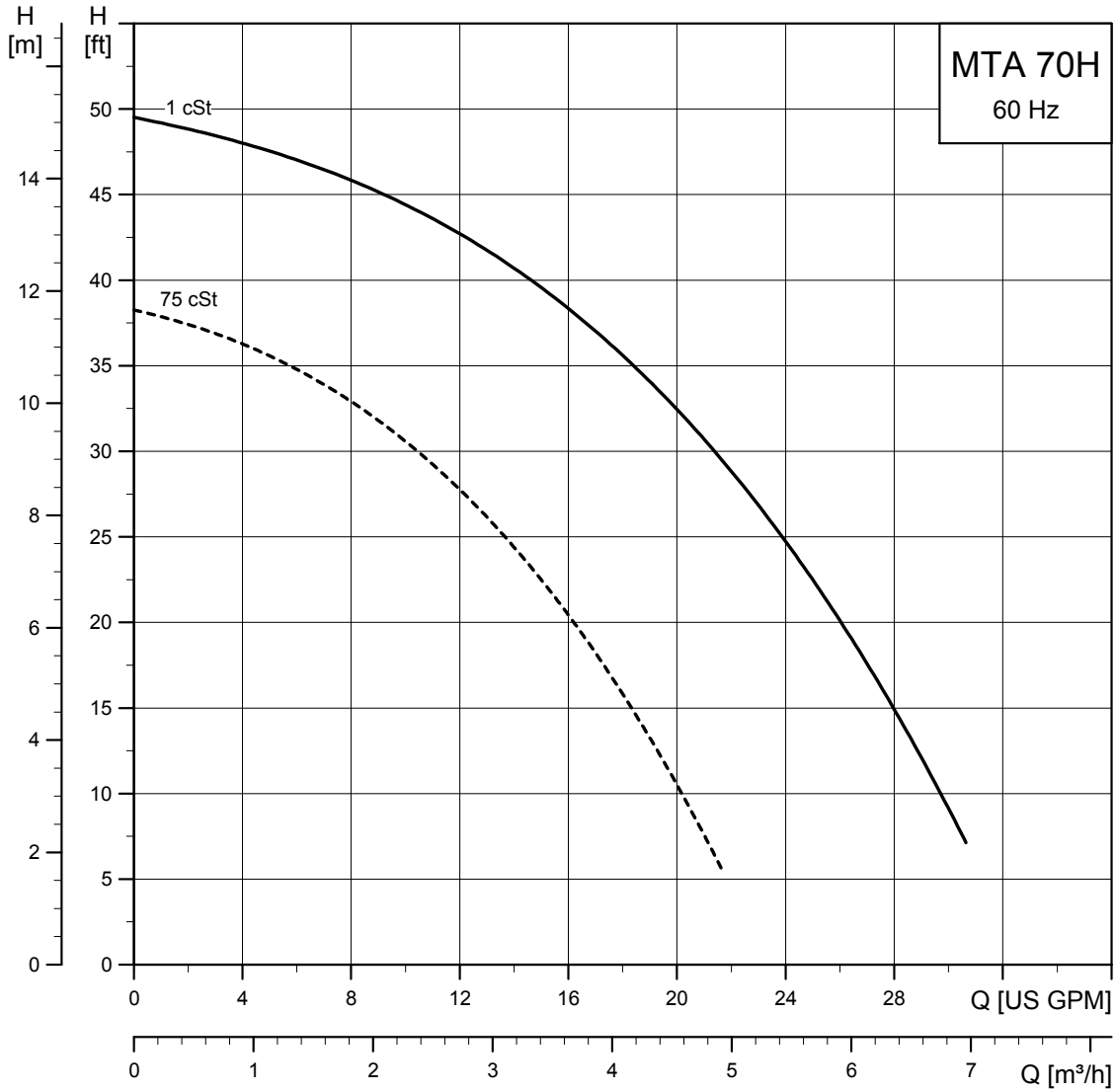
Dimensions and weights

Pump type	Suction	A [inch (mm)]	B [inch (mm)]	Net weight [lbs (kg)]	Gross weight [lbs (kg)]	Shipping volume [ft ³ (m ³)]
MTA 40H-180	Top	14.21 (361)	7.09 (180)	24.91 (11.3)	27.78 (12.6)	0.71 (0.02)

Electrical data

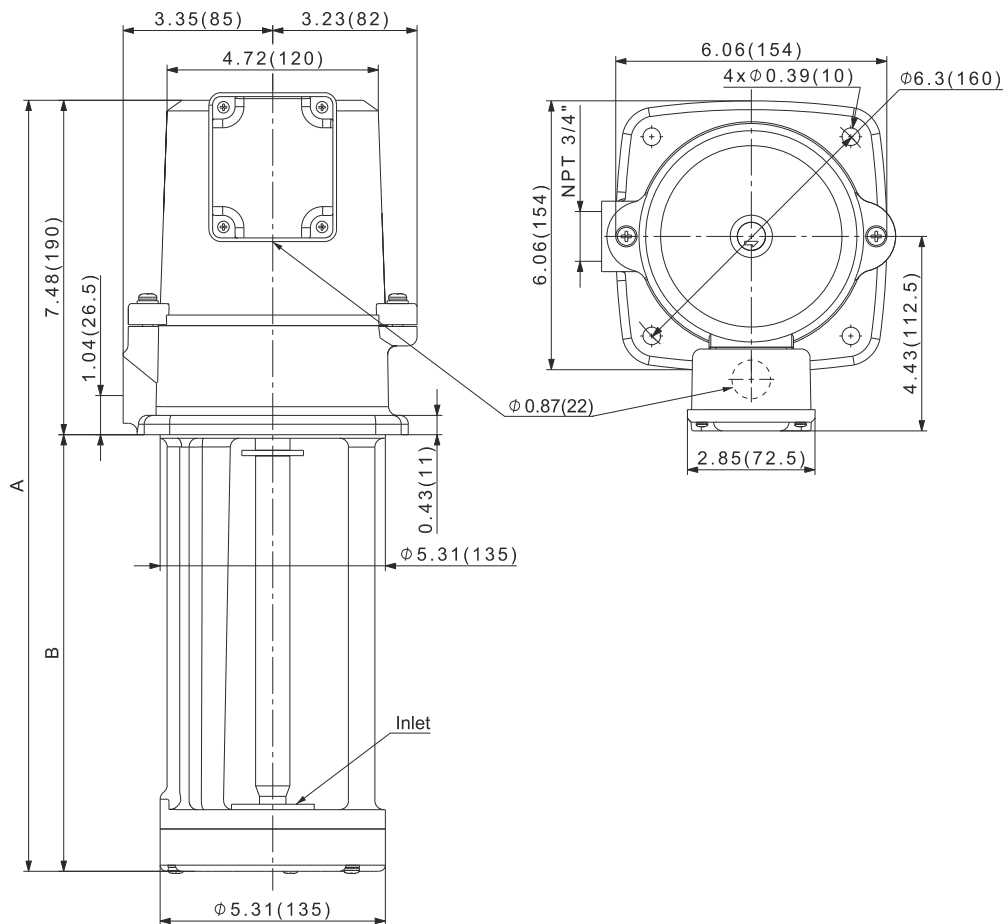
Voltage	Frequency [Hz]	P1 [W]	I _{1/1} [A]	I _{max} [A]	I _{start} / I _{1/1} [A]	Cos φ
3 x 208-230 YY V	60	375	1.22-1.18	1.4-1.36	-	0.85-0.8
3 x 460 Y V	60	375	0.64	0.74	-	0.8

MTA 70H



TM05 1744 3611

Dimensional sketches



Top suction

TM05 1791 3711

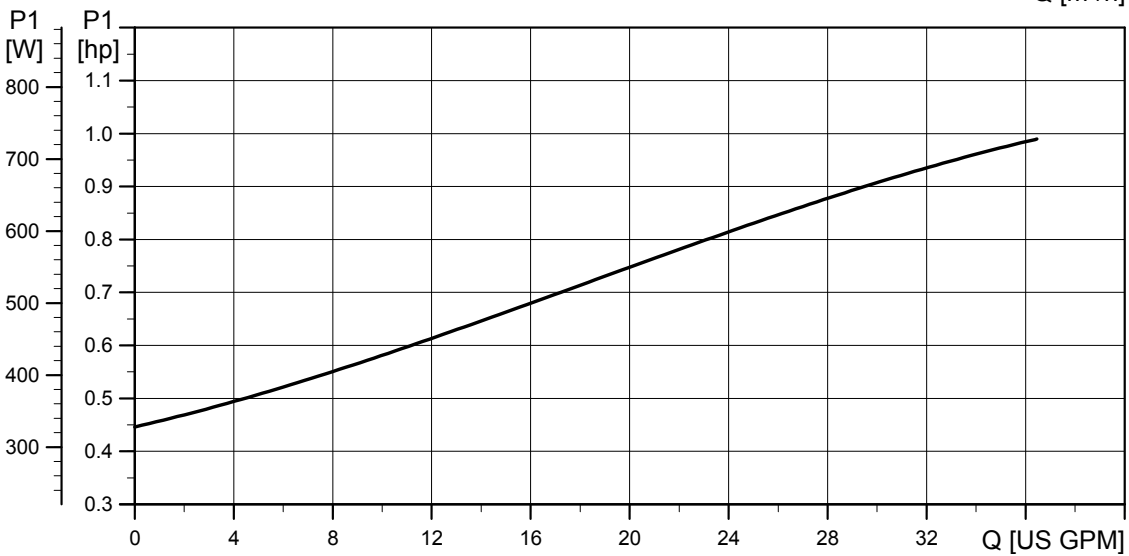
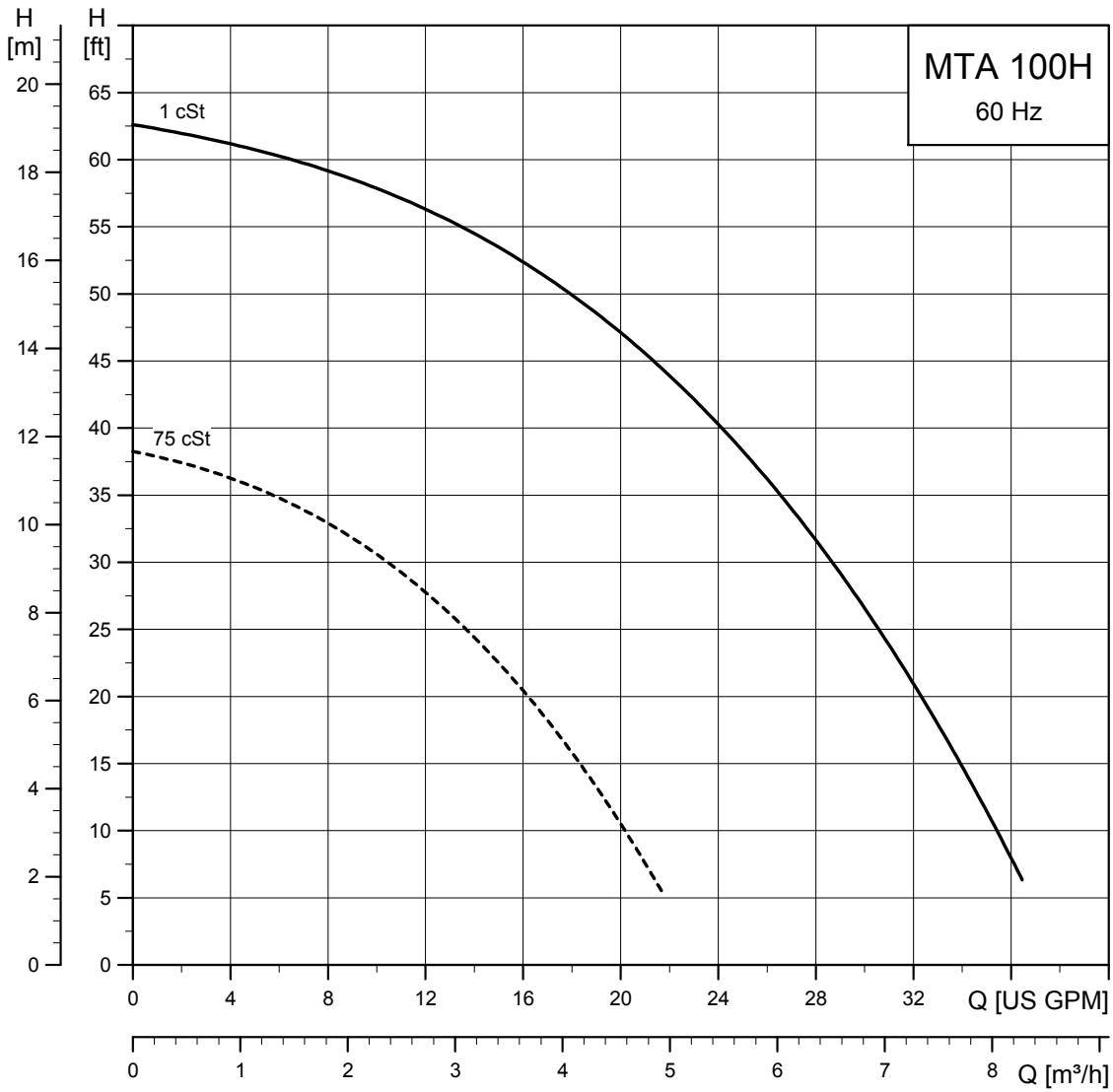
Dimensions and weights

Pump type	Suction	A [inch (mm)]	B [inch (mm)]	Net weight [lbs (kg)]	Gross weight [lbs (kg)]	Shipping volume [ft ³ (m ³)]
MTA 70H-250	Top	17.32 (440)	9.84 (250)	31.53 (14.3)	35.27 (16)	0.81 (0.023)

Electrical data

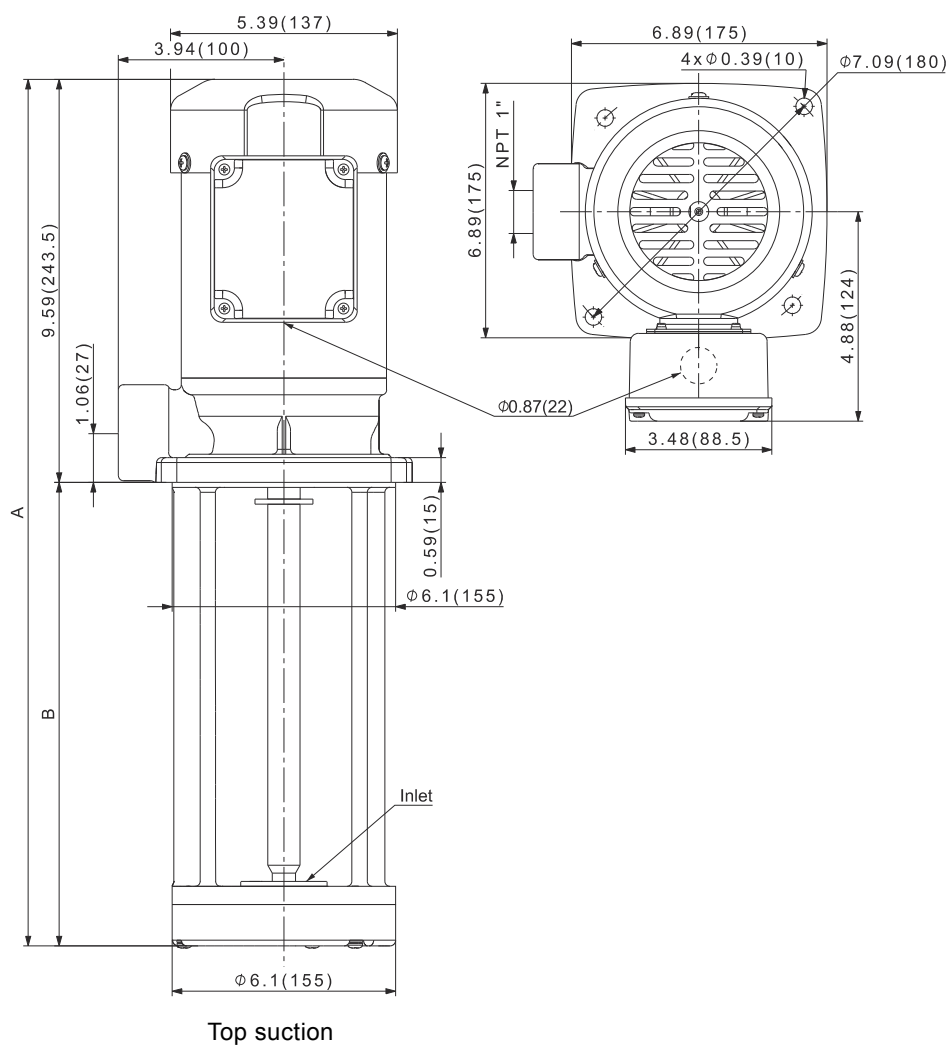
Voltage	Frequency [Hz]	P1 [W]	I _{1/1} [A]	I _{max} [A]	I _{start} / I _{1/1} [A]	Cos φ
3 x 208-230 YY V	60	455	1.55-1.46	1.78-1.68	-	0.81-0.78
3 x 460 Y V	60	455	0.74	0.85	-	0.78

MTA 100H



TM05 1745 3611

Dimensional sketches



TM05 1792 3711

Dimensions and weights

Pump type	Suction	A [inch (mm)]	B [inch (mm)]	Net weight [lbs (kg)]	Gross weight [lbs (kg)]	Shipping volume [ft ³ (m ³)]
MTA 100H-280	Top	20.61 (523.5)	11.02 (280)	40.79 (18.5)	35.49 (16.1)	1.13 (0.032)

Electrical data

Voltage	Frequency [Hz]	P1 [W]	I _{1/1} [A]	I _{max} [A]	I _{start} / I _{1/1} [A]	Cos ϕ
3 x 208-230 YY V	60	720	2.26-2.15	2.6-2.47	-	0.88-0.84
3 x 460 Y V	60	720	1.09	1.25	-	0.84

10. Further product documentation

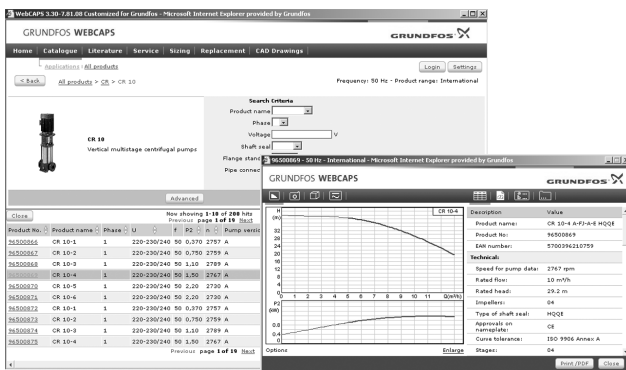
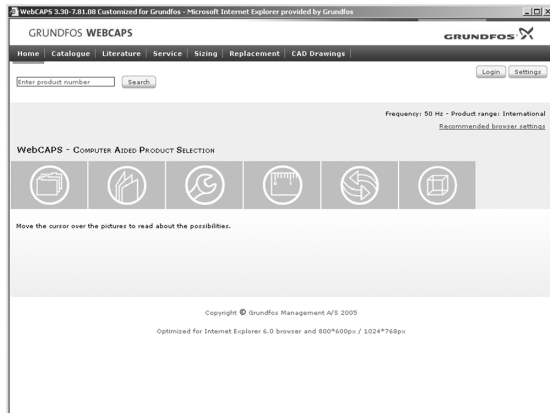
WebCAPS

WebCAPS is a **Web-based Computer Aided Product Selection** program available on www.grundfos.com.

WebCAPS contains detailed information on more than 220.000 Grundfos products in more than 30 languages.

Information in WebCAPS is divided into six sections:

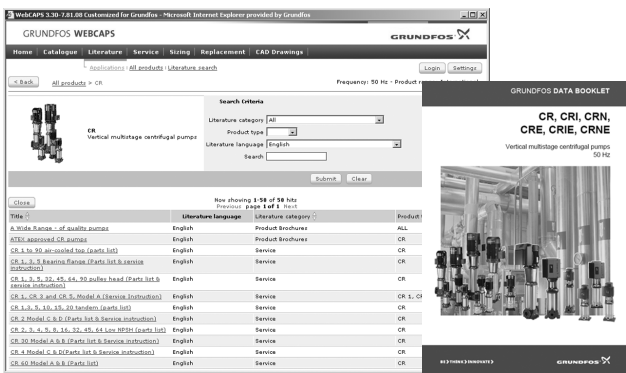
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings



Catalog

Based on fields of application and pump types, this section contains the following:

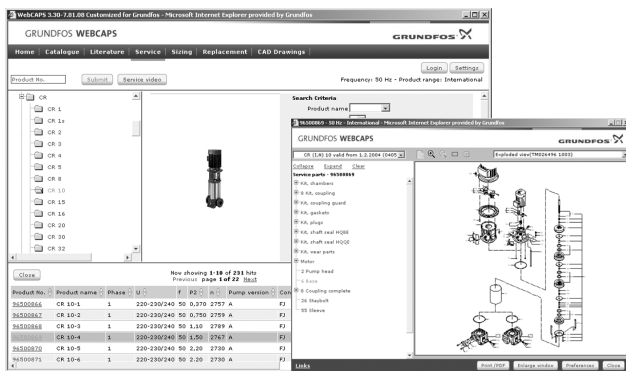
- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

This section contains all the latest documents of a given pump, such as

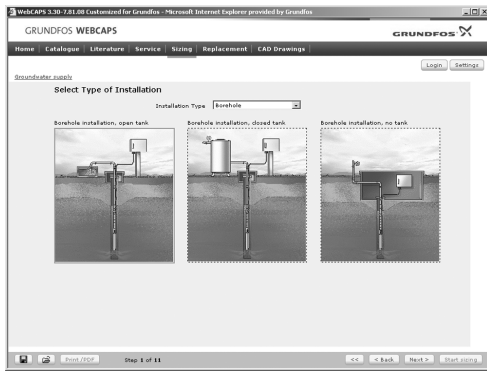
- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures.




Service

This section contains an easy-to-use interactive service catalog. Here you can find and identify service parts of both existing and discontinued Grundfos pumps.

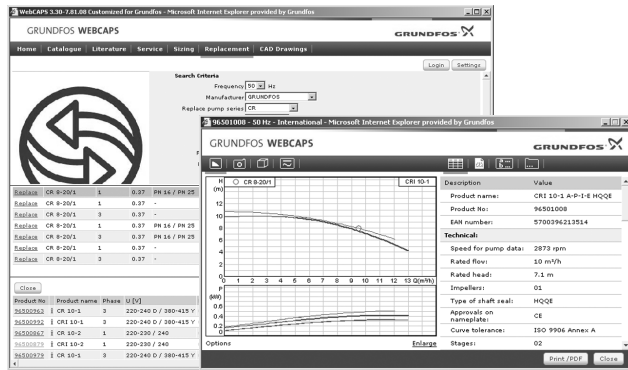
Furthermore, the section contains service videos showing you how to replace service parts.




Sizing 

This section is based on different fields of application and installation examples and gives easy step-by-step instructions in how to size a product:

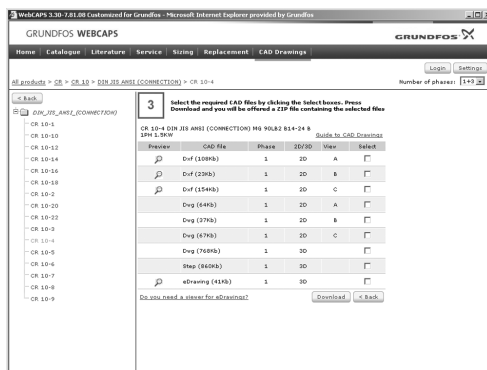
- Select the most suitable and efficient pump for your installation
- Carry out advanced calculations based on energy consumption, payback periods, load profiles, life cycle costs, etc.
- Analyse your selected pump via the built-in life cycle cost tool
- Determine the flow velocity in wastewater applications, etc.



Replacement 

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump. The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. When you have specified the installed pump, the guide will suggest a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings 

In this section, it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

These formats are available in WebCAPS:

- 2-dimensional drawings:
- .dxf, wireframe drawings
 - .dwg, wireframe drawings.
- 3-dimensional drawings:
- .dwg, wireframe drawings (without surfaces)
 - .stp, solid drawings (with surfaces)
 - .eprt, E-drawings.

WinCAPS



Fig. 9 WinCAPS CD-ROM

WinCAPS is a **Windows-based Computer Aided Product Selection** program containing detailed information on more than 220.000 Grundfos products in more than 30 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no internet connection is available.

WinCAPS is available on CD-ROM and updated once a year.

Subject to alterations.

L-MT-PG-003

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