

DEPM IVS PUMPS | FAQ

File No: 100.2025
Date: JANUARY 08, 2025
Supersedes: 100.2025
Date: AUGUST 19, 2024

General

- Q1** How do I select DEPM IVS pump in ADEPT?
- A1** Select your pump by flow and head in the Automatic mode, once you enter the information, look for **DEPM IVS** models in the selection grid. Note the DEPM IVS pumps include 6" Tango pumps 15-40hp (11-30kW), 6" and 7.5" diameter Vertical Inline pumps from 15-60hp (11-45kW) and 6" End suction pumps 15-50hp (11-37kW). More models and higher powers will be released in the near future.
- In Manual mode, the models include:
- Tango 4332 0406B (1015B),
 - Tango 4332 0406C (1015C),
 - DEPM IVS 4300 0306B (8015B) or constant speed 3×3×6B (80-150B),
 - DEPM IVS 4300 0406C (1015C) or constant speed 4×4×6C (100-150C),
 - DEPM IVS 4300 0506 (1215) or constant speed 5×5×6 (125-150),
 - DEPM IVS 4300 2507 (6519) or constant speed 2.5×2.5×7.5 (65-190),
 - DEPM IVS 4300 0307 (8019) or constant speed 3×3×7.5 (80-190),
 - DEPM IVS 4300 0507 (1219) or constant speed 5×5×7.5 (125-190)
 - DEPM IVS 4200H 2506B (6515B)
 - DEPM IVS 4200H 0306C (8015C)
 - DEPM IVS 4200H 0406 (1015)
- Q2** Which voltages are available for the DEPM IVS motors?
- A2** They are available in 3 phase, 380-480V, 575V from 15hp to 60hp (11kW to 45kW). For 200-230V up to 40hp/30kW only.
- Q3** Are the DEPM IVS vertical pumps available for outdoor use?
- A3** Yes. The controls portion of the DEPM IVS motors are rated NEMA Type 4X or IP66. Units shipped from SAA are rated UL 778 for outdoor operation. They will also include the touchscreen cover and overhead weathershield.
- Q4** Is there a lead time adder for the DEPM IVS pumps?
- A4** DEPM IVS pumps are the same lead time as DE IVS (induction motor) pumps. Please refer to your latest respective shipment indicator for specific lead times on the DEPM IVS pumps.
- Q5** Can the DEPM IVS motors and controls operate at higher ambient temperatures than 45°C (113°F). Or de-rate?
- A5** Yes, the DEPM IVS motors and controls can be operated up to 50°C (122°F). Refer to the I&O manuals (Section 2.2.4) for details on ambient temperature de-rating.
- Q6** If I have an existing DE IVS (induction motor) pump unit in the field, can I retrofit it with DEPM IVS motor?
- A6** No, the DEPMH motors use custom shafts and motor faces, designed specifically for operation on DEPM IVS pumps.
- Q7** Are the integrated fused disconnect switches available for the DEPM IVS?
- A7** Yes, because the DEPM IVS uses the same IVS controls, integrated fused disconnect switches are available as an option.
- Q8** How does the DEPMH motor use the same IVS controls as induction motors? Why isn't it **integrated** like the small DEPMs?
- A8** The DEPMs were developed as a physically integrated design. Functionally however, it still has a frequency converter and a motor. The DEPM IVS provides a visually integrated appearance of a motor and drive controller.
- Q9** What is the purpose or function of the shrouds around the motor and controls?
- A9** The shrouds are strictly decorative in function. They do not provide any enclosure rating protection. They are only to provide a visually integrated appearance to the pumping unit. Because the new DEPMH motors are significantly smaller than induction motors, and the IVS controls remaining the same, the pumps would look aesthetically displeasing with mismatched proportions. The shrouds also allow Armstrong to potentially use other DEPM motors or drive controls in the future.
- Q10** Do the shrouds restrict air flow in cooling the motor and controls?
- A10** Armstrong has ensured there are sufficient clearances in the design of the decorative shrouds to prevent overheating of the motor and controls. The design has passed our extensive in-house heat rise tests.
- Q11** Since the drive is still an IVS, can I get the DEPM IVS pumps with wall mounted / standalone drives?
- A11** The best value is the DEPM IVS pump and designed to be an integrated pumping assembly. In the rare instances where the value is not recognized, the selected pump can be provided with a constant speed motor and an IVS standalone drive (without the DEPC). In ADEPT, select **Conventional - Variable Speed** under the **Select A Product** section. The DEPMH motor cannot be provided for conventional variable speed as there is custom programming in the DEPC required for its operation.

Q12 Can I add bearing current protection to the DEPM IVS pumps?

A12 Yes, but note the only option available for DEPM IVS pumps is **AEGIS shaft grounding ring** only.

No other bearing current protection options can be used with the DEPMH motors. i.e. an insulated NDE bearing cannot be provided as the motor design does not allow other bearing types.

Q13 Are the DEPM IVS pumps available with stainless steel casings?

A13 The DEPM IVS pumps are not available with stainless steel casings.

Q14 Can I get epoxy coating on the pumps?

A14 No, the 3 new VIL pump models feature e-coated wetted parts. E-coating provides an effective method of preventing seizing of the impeller and preventing the decline in hydraulic performance and efficiency.

The application of epoxy coating would require the e-coating to be removed by sand blasting the surfaces and thus no longer becomes economically feasible to produce.

DEPMH Motors

Q1 Are higher power DEPM IVS motors available?

A1 DEPM IVS motors are not currently available for higher than 60hp (45kW). Investment in additional motor sizes will not be made until the dedicated pump hydraulics are developed first. The models / envelopes featured in ADEPT are the only models available.

Q2 Why are there multiple power and speed ratings on the motor nameplates?

A2 The DEPM motors are multi-rated for various powers and nominal speeds. The specific power and speed ratings are set by Armstrong factories for the intended application requirements – as noted on the pump nameplates. Electrical protection (such as fuses) can be sized based on the tables detailed in the I&O manuals.

Q3 Why is the frequency of the DEPMH motor higher than 60Hz/50Hz?

A3 Induction motors nameplated for 60Hz/50Hz require 60Hz/50Hz frequency from the drive to produce 100% of the motor rated speed. However, permanent magnet motors are engineered for operation at higher frequencies – such as 120Hz (or higher), to produce 100% of the rated speed. The higher frequency is provided by the IVS drive which can produce 0-590Hz.

Q4 Why does the DEPMH motor appear to have 4 poles but not have an 1800 rpm nominal speed for 60Hz supply (or 1500 rpm nominal speed for 50Hz supply)?

A4 With induction motors at 60Hz, 2 poles correlate to 3600 rpm or 4 poles correlate to 1800 rpm. (Or at 50Hz, 2 poles correlate to 3000 rpm, and 4 poles correlate to 1500 rpm). Permanent Magnet motors use a different architecture and there is no correlation between the nominal speed and the number poles. For example, a DEPMH motor rated for 3600 rpm can have 4 poles, 8 poles, or 9 poles. The pole design varies on what is considered optimal for the specific motor.

Q5 Can DEPMH motors be operated without a VFD?

A5 The DEPMH motor is a synchronous motor (where the rotor and stator must operate at a similar frequency), and cannot be direct-online started without generating a starting torque. That is, if direct-online started the stator would see 60Hz (or 50Hz) line frequency, while the rotor is still at 0 Hz and would not move. The VFD provides a low frequency ramp up (e.g. 1Hz) to the stator that allows it to **catch** the rotor, which in turn causes it to move.

Q6 What happens to the magnets when the motor is powered down? Do they lose their magnetism?

A6 The magnets always maintain their magnetism - they are permanent magnets. Service personnel must carefully handle permanent magnet motors to avoid safety hazards from strong magnetic fields and prevent damage to the motor or injury.

Tango pumps

Q1 What's the difference between the Tango 4322 and 4372 versus the Tango 4332?

A1 The Tango 4332s have integral valves on the suction and discharge allowing users to isolate one pump head for service.

The Tango 4322 and 4372s do not have this feature because the weight of the pump heads up to 10hp/7.5kW can be lifted without mechanical aid – and seal changes can be done in 15-30 minutes. If the servicing task requires more time, blanking plates are available for these smaller Tangos to seal the off the casing and allow operation of the other pump head to resume.

Q2 Can the Tango 4332 controls be re-oriented in the event there is a clearance issue?

A2 Yes, the controls can be re-oriented in the field, to suit the on-site clearance requirements. It is recommended the controls be re-oriented from the base of the pedestal, where the 8-bolt configuration allows 45° increments (where physically possible).

- Q3** Why does the Tango 4332 not require a Flo-trex valve on the discharge?
- A3** The 3 functions of the Flo-trex valve are: isolation, check, and throttling. The Tango discharge valve has built-in isolation and check functionality; and the throttling function is seldomly used when variable speed controls are available. This presents an additional savings of being able to eliminate the Flo-trex valve.
- Q4** Why is there no option for a high pressure (ANSI 250/PN25) Tango 4322?
- A4** The Tango 4322 and its integral valves are designed for operation up to 265 psi hydrostatic test pressure (or 1.5 times the 175psi maximum working pressure). The business case for designing the Tango for operation up to 565 psi (or 1.5 times the 375psi hydrostatic test pressure) was not justified.
- If there is a high-pressure application that requires two pumps, it is recommended two vertical inline pumps with ANSI 250/PN 25 flange ratings be offered.
- Q5** Can the Tango pump be operated in duty/standby mode?
- A5** Yes, it can be set for duty/standby operation with alternation between lead/lag pumps every 1 week (default). However, operation via Parallel Sensorless control is recommended for lowest operating costs and lowest capital costs.
- Q6** If the Tango pump is to be controlled by a BAS, will I still get best-efficiency staging?
- A6** The pumps can only be operated by 1 mode of control at a time. While Parallel Sensorless and its best-efficiency staging is still embedded in the Tango controls, it would be inactive if the BAS (speed-based control) is controlling the pumps.
- Q4** How do the DEPM IVS end suction pumps operate without an inertia base? Don't all base mounted pumps require an inertia base to isolate vibration?
- A4** Inertia bases add rigidity between the pump and motor via the concrete. The mass from the inertia base shifts the natural frequency to higher speeds, outside the pump operating range.
- DEPM IVS end suction pumps use a rigid pedestal to connect the pump and motor, forming a single, balanced mass. The natural frequency is shifted to low speeds and bypassed during ramp-up and ramp-down. Vibrations are effectively isolated using flex connectors and integral spring isolators.
- Q5** Can a support pipe be installed under the suction guide with the DEPM IVS end suction pumps?
- A5** There should be no pipe support under the suction guide as it may transfer vibration to the floor of the building.
- Q6** Are close-coupled end suction pumps (DEPM IVS 4280) available with integral springs and DEPM motors over 10hp/7.5kW?
- A6** Only split-coupled DEPM IVS 4200H models are offered with integral springs and DEPM motors over 10hp/7.5kW. This split coupling design with outside mechanical seals allow seal changes to be completed in 15-30 minutes without having to remove the motor.

DEPM IVS End Suctions

- Q1** Can the DEPM IVS end suction pumps be selected without integrated springs?
- A1** The design includes the integrated springs as standard to provide vibration isolation in lieu of an inertia base. If they are not required for specific applications, the springs and shrouds can be disassembled from the pumping unit in the field.
- Q2** Are the DEPM IVS end suction pumps available for outdoor applications?
- A2** An outdoor rated option for the DEPM IVS end suction pumps is not available this time.
- Q3** What if I need to install the pumps in a seismic zone?
- A3** Select the seismic option in ADEPT (in the Options tab) to get the seismic restrained springs. DE 4200H IVS pumps are covered in Armstrong's OSP seismic certification pre-approval.

TORONTO

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

BUFFALO

93 EAST AVENUE, NORTH
TONAWANDA, NEW YORK,
USA, 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

#18, LEWIS WORKSPACE, 3RD FLOOR,
OFF MILLERS - NANDIDURGA ROAD,
JAYAMAHAL CBD, BENSON TOWN,
BANGALORE, INDIA 560 046
+91 80 4906 3555

SHANGHAI

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

BEIJING

ROOM 1612, NANYIN BUILDING NO.2
NORTH EAST THRID RING ROAD
CHAOYANG DISTRICT, BEIJING,
CHINA 100027
+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 20 10 26 21

DUBAI

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

JIMBOLIA

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

FRANKFURT

WESTERBACHSTRASSE 32,
D-61476 KRONBERG IM TAUNUS
GERMANY
+49 6173 999 77 55

ARMSTRONG FLUID TECHNOLOGY®
ESTABLISHED 1934

ARMSTRONGFLUIDTECHNOLOGY.COM