INSTALLING PERISTALTIC HOSES

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Neptune peristaltic hoses are manufactured to the highest standards of the highest quality materials. They have been proven in test to give superior longevity when installed into competitors' pumps. **However, to achieve this superior hose life, it is an absolute necessity that the hose compression be properly set for the operating conditions of the pump:**

- If the hose is under-compressed (not enough shims) the fluid will re-circulate internally which will result in rapid hose deterioration and reduced pump performance and hose life.
- If the hose is over-compressed (too many shims) hose life will also be adversely affected (to a lesser degree) and the unit will consume excessive horsepower.

Shimming for new hose installation is not difficult but attention to detail is important. These instructions, which do not assume any factory presets, are intended for fitting Neptune Abaque hoses in competitors' pumps. (This procedure may also be used for Abaque pumps. However, many will find that the procedure covered in the IOM instructions that ship with new Abaque pumps is simpler.) To proceed requires removal of the lubricant, hose and front cover and starting with a clean pump internal cavity. Before and during work on the pump check the following:

- **Consult original equipment IOM instructions for safety precautions and pump specific instructions.**
- **All hose casing contact-surfaces and the shoes must be free of burrs, dirt, etc. and not excessively worn.**
- **Bearings must be free of radial play.** Side movement due to worn bearings or other wheel support components will allow the hose to be compressed at a variable rate, making it impossible to make and maintain the required setting. Any excessive play will affect hose life and pump performance/reliability.
- **Check the casing at multiple points in hose-to-case contact areas, for concentricity relative to the shaft.** Take adequate measurements using a single location on the wheel OD to determine if out-of-round deviation exceeds shim tolerance values. If the casing is out of round or exhibits excessive wear (channel wear / a course-pitted surface) it will be difficult to reliably maintain proper hose compression, and it should be replaced to re-establish maximum hose life/reliability/performance. Under these conditions, a new Abaque pump may be considered as the best option if other major components are worn as well.
- **Verify both shoes are the same thickness and/or shimmed correctly.** Measure dimension "a", between tip-of-shoe and case-bore, for each shoe, to verify both are set to offer same hose compression. If there is observed a deviation between measurements of the 2-shoes to case-bore, investigate for improper shimming or worn shoe(s). Add or remove shims, or replace shoes as required.

The following pages are for use with Neptune Abaque hoses and show the tolerance for dimension "a" from the tip of the shoe to the inside of the casing per pump model size. This same information is delivered attached to each hose from Neptune. The example, for an ABNX40, shows how the value for "a" is derived from a specific pump table per pressure range / operation speed. Install appropriate equal number of shims under each shoe to achieve the "a" dimension within this tolerance. Re-assemble the pump **(consult IOM instructions for safety precautions)** and fill with the recommended level of lubricant.

INSTALLING PERISTALTIC HOSES

⚠WARNING

Hazardous pressure can cause personal injury or property damage

DISCONNECTING FLUID OR PRESSURE CONTAINMENT COMPONENTS DURING PUMP OPERATION CAN CAUSE SERIOUS PERSONAL INJURY, DEATH OR MAJOR PROPERTY DAMAGE

⚠WARNING

Hazardous voltage. Can shock, burn or cause death

FAILURE TO DISCONNECT AND LOCKOUT ELECTRICAL POWER BEFORE ATTEMPTING MAINTENANCE CAN CAUSE SHOCK, BURNS OR DEATH

⚠WARNING

Hazardous machinery can cause serious personal injury.

FAILURE TO DISCONNECT AND LOCKOUT ELECTRICAL POWER OR ENGINE DRIVE BEFORE ATTEMPTING MAINTENANCE CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

⚠WARNING

Hazardous pressure can cause serious personal injury or property damage

FAILURE TO RELIEVE SYSTEM PRESSURE PRIOR TO PERFORMING PUMP SERVICE OR MAINTENANCE CAN CAUSE SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE.

⚠WARNING

Hazardous machinery can cause severe personal injury or property damage

AVOID STANDING IN LINE WITH THE PUMP HOSE SO YOU WILL NOT BE PULLED IN OR HIT WITH THE HOSE DURING INSTALLATION.

⚠WARNING

Hazardous or toxic fluids can cause serious injury.

IF PUMPING HAZARDOUS FLUIDS, SYSTEM MUST BE FLUSHED, PRIOR TO PERFORMING SERVICE OR MAINTENANCE

⚠WARNING

Hazardous machinery can cause serious personal injury.

DO NOT USE HANDS TO GUIDE THE HOSE INTO THE PUMP.

⚠CAUTION

Lubricant is slippery and can cause personal injury.

ALL LUBRICANT SPILLS SHOULD BE CLEANED PROPERLY TO PREVENT PERSONAL INJURY OR PROPERTY DAMAGE.

⚠CAUTION

Heavy assemblies can cause personal injury or property damage.

ALWAYS USE A LIFTING DEVICE CAPABLE OF SUPPORTING THE FULL WEIGHT OF THE PUMP UNIT.

NOTICE
When changing the hose, wear safety gloves and keep hands away from the inlet and discharge.

NOTICE
If hose is stuck on the inlet insert, lock out electrical power to pumping unit and cut hose on inlet side along the insert.

NOTICE
Maintenance shall be performed by qualified technicians only, following the appropriate procedures and warnings as presented in the pump instruction manual.

INSTALLING PERISTALTIC HOSES

Peristaltic Hose Compression Information

1. Determine pump size, differential pressure, and operating speed. Speed is determined by dividing motor rpm by reducer ratio.

2. Using the appropriate table (see pages 4 - 7) for the given pump size, find the acceptable range of values of the distance "a" (see drawing below).

a. Select the differential pressure in the first column.

b. Move right and select the pump rpm in the second column.

c. Move right and read the corresponding "a" distance range from the third column[1].

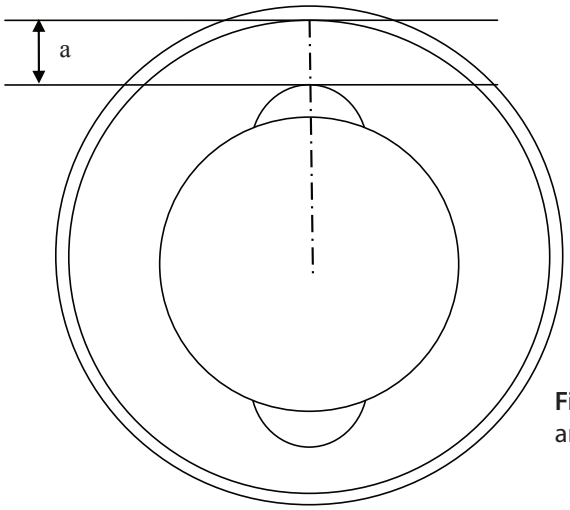

Fig 1 – Distance "a" between the tip-of-the-shoe and the pump-housing bore:

3. Add or remove shims to achieve the distance "a" that falls in the acceptable range given in the table. Follow instructions found in the equipment Installation and Operation Manual.

[1] *For temperatures greater than 60°C (140°F) increase the distance "a" 0.5 mm (.020 in.) by installing fewer shims as necessary. However, do not increase the distances given for 5 bar (72.5psi) pressure.*

EXAMPLE:

SPX40 pump for **100 psi** differential pressure to operate at **35 rpm** (temp @ 100°F)
Answer: (From SPX40 and AX40 table on page 4)

100 psi → → → 5 (72.5) < ΔP ≤ 7.5 (108.75)	**35rpm** → 5 < Ω ≤ 55 55 < Ω ≤ 100	**24 (0.945) < a ≤ 24.5 (0.965)** 24.5 (0.965) < a ≤ 25 (0.984)

Note: If temperature had been 150°F, then increase each value by 0.5 mm (0.020 in).

INSTALLING PERISTALTIC HOSES

SP(X)25 and ABN25

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 40 40 < Ω ≤ 120 120 < Ω ≤ 160	25.6 (1.008'') < a ≤ 26.1 (1.028'') 26.1 (1.028'') < a ≤ 26.6 (1.047'') 26.6 (1.047'') < a ≤ 27.1 (1.067'')
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 40 40 < Ω ≤ 120 120 < Ω ≤ 135	25.1 (0.988'') < a ≤ 25.6 (1.008'') 25.6 (1.008'') < a ≤ 26.1 (1.028'') 26.1 (1.028'') < a ≤ 26.6 (1.047'')
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 40 40 < Ω ≤ 115	24.6 (0.969'') < a ≤ 25.1 (0.988'') 25.1 (0.988'') < a ≤ 25.6 (1.008'')
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 40 40 < Ω ≤ 90	24.1 (0.949'') < a ≤ 24.6 (0.969'') 24.6 (0.969'') < a ≤ 25.1 (0.988'')

SP(X)32 and A32

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 45 45 < Ω ≤ 105 105 < Ω ≤ 140	27.6 (1.087'') < a ≤ 28.1 (1.106'') 28.1 (1.106'') < a≤ 28.6 (1.126'') 28.6 (1.126'') < a ≤ 29.1 (1.146'')
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 45 45 < Ω ≤ 105 105 < Ω ≤ 115	27.1 (1.067'') < a ≤ 27.6 (1.087'') 27.6 (1.087'') < a ≤ 28.1 (1.106'') 28.1 (1.106'') < a ≤ 28.6 (1.126'')
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 45 45 < Ω ≤ 100	26.6 (1.047'') < a ≤ 27.1 (1.067'') 27.1 (1.067'') < a ≤ 27.6 (1.087'')
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 45 45 < Ω ≤ 75	26.1 (1.028'') < a ≤ 26.6 (1.047'') 26.6 (1.047'') < a ≤ 27.1 (1.067'')

ABN40

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 45 45 < Ω ≤ 115 115 < Ω ≤ 140	22.9 (0.902'') < a ≤ 23.4 (0.921'') 23.4 (0.921'') < a ≤ 23.9 (0.941'') 23.9 (0.941'') < a ≤ 24.4 (0.961'')
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 45 45 < Ω ≤ 115	22.4 (0.882'') < a ≤ 22.9 (0.902'') 22.9 (0.902'') < a ≤ 23.4 (0.921'')
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 45 45 < Ω ≤ 100	21.9 (0.862'') < a ≤ 22.4 (0.882'') 22.4 (0.882'') < a ≤ 22.9 (0.902'')
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 45 45 < Ω ≤ 75	21.4 (0.843'') < a ≤ 21.9 (0.862'') 21.9 (0.862'') < a ≤ 22.4 (0.882'')

INSTALLING PERISTALTIC HOSES

SP(X)40 and ABNX40*

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 55 55 < Ω ≤ 100 100 < Ω ≤ 120	24.5 (0.965'') < a ≤ 25 (0.984'') 25 (0.984'') < a ≤ 25.5 (1.004'') 25.5 (1.004'') < a ≤ 26 (1.024'')
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 55 55 < Ω ≤ 100	24 (0.945'') < a ≤ 24.5 (0.965'') 24.5 (0.965'') < a ≤ 25 (0.984'')
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 55 55 < Ω ≤ 85	23.5 (0.925'') < a ≤ 24 (0.945'') 24 (0.945'') < a ≤ 24.5 (0.965'')
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 55 55 < Ω ≤ 65	23 (0.906'') < a ≤ 23.5 (0.925'') 23.5 (0.925'') < a ≤ 24 (0.945'')

* This is table used in example on page 2.

SP(X)50 and A50

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 30 30 < Ω ≤ 65 65 < Ω ≤ 90	27.2 (1.071'') < a ≤ 27.7 (1.091'') 27.7 (1.091'') < a ≤ 28.2 (1.110'') 28.2 (1.110'') < a ≤ 28.7 (1.130'')
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 30 30 < Ω ≤ 65 65 < Ω ≤ 75	26.7 (1.051'') < a ≤ 27.2 (1.071'') 27.2 (1.071'') < a ≤ 27.7 (1.091'') 27.7 (1.091'') < a ≤ 28.2 (1.11'')
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 30 30 < Ω ≤ 65	26.2 (1.031'') < a ≤ 26.7 (1.051'') 26.7 (1.051'') < a ≤ 27.2 (1.071'')
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 30 30 < Ω ≤ 50	25.7 (1.012'') < a ≤ 26.2 (1.031'') 26.2 (1.031'') < a ≤ 26.7 (1.051'')

ABN65

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 30 30 < Ω ≤ 65 65 < Ω ≤ 90	24.3 (0.957'') < a ≤ 24.8 (0.976'') 24.8 (0.976'') < a ≤ 25.3 (0.996'') 25.3 (0.996'') < a ≤ 25.8 (1.016'')
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 30 30 < Ω ≤ 65 65 < Ω ≤ 75	23.8 (0.937'') < a ≤ 24.3 (0.957'') 24.3 (0.957'') < a ≤ 24.8 (0.976'') 24.8 (0.976'') < a ≤ 25.3 (0.996'')
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 30 30 < Ω ≤ 65	23.3 (0.917'') < a ≤ 23.8 (0.937'') 23.8 (0.937'') < a ≤ 24.3 (0.957'')
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 30 30 < Ω ≤ 50	22.8 (0.898'') < a ≤ 23.3 (0.917'') 23.3 (0.917'') < a ≤ 23.8 (0.937'')

INSTALLING PERISTALTIC HOSES

SP(X)65 and AX65

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 25 25 < Ω ≤ 45 45 < Ω ≤ 65	30.9 (1.217") < a ≤ 31.4 (1.236") 31.4 (1.236") < a ≤ 31.9 (1.256") 31.9 (1.256") < a ≤ 32.4 (1.276")
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 25 25 < Ω ≤ 45 45 < Ω ≤ 50	30.4 (1.197") < a ≤ 30.9 (1.217") 30.9 (1.217") < a ≤ 31.4 (1.236") 31.4 (1.236") < a ≤ 31.9 (1.256")
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 25 25 < Ω ≤ 45	29.9 (1.177") < a ≤ 30.4 (1.197") 30.4 (1.197") < a ≤ 30.9 (1.217")
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 25 25 < Ω ≤ 35	29.4 (1.157") < a ≤ 29.9 (1.177") 29.9 (1.177") < a ≤ 30.4 (1.197")

ABNX80

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 25 25 < Ω ≤ 45 45 < Ω ≤ 65	30.9 (1.217") < a ≤ 31.4 (1.236") 31.4 (1.236") < a ≤ 31.9 (1.256") 31.9 (1.256") < a ≤ 32.4 (1.276")
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 25 25 < Ω ≤ 45 45 < Ω ≤ 50	30.4 (1.197") < a ≤ 30.9 (1.217") 30.9 (1.217") < a ≤ 31.4 (1.236") 31.4 (1.236") < a ≤ 31.9 (1.256")
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 25 25 < Ω ≤ 45	29.9 (1.177") < a ≤ 30.4 (1.197") 30.4 (1.197") < a ≤ 30.9 (1.217")
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 25 25 < Ω ≤ 35	29.4 (1.157") < a ≤ 29.9 (1.177") 29.9 (1.177") < a ≤ 30.4 (1.197")

SP(X)80 and ABN80

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 15 15 < Ω ≤ 30 30 < Ω ≤ 45 45 < Ω ≤ 60	38.5 (1.516") < a ≤ 39.0 (1.535") 39.0 (1.535") < a ≤ 39.5 (1.555") 39.5 (1.555") < a ≤ 40.0 (1.575") 40.0 (1.575") < a ≤ 40.5 (1.594")
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 15 15 < Ω ≤ 30 30 < Ω ≤ 45 45 < Ω ≤ 50	38.0 (1.496") < a ≤ 38.5 (1.516") 38.5 (1.516") < a ≤ 39.0 (1.535") 39.0 (1.535") < a ≤ 39.5 (1.555") 39.5 (1.555") < a ≤ 40.0 (1.575")
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 15 15 < Ω ≤ 30 30 < Ω ≤ 40	37.5 (1.476") < a ≤ 38.0 (1.496") 38.0 (1.496") < a ≤ 38.5 (1.516") 38.5 (1.516") < a ≤ 39.0 (1.535")
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 15 15 < Ω ≤ 30	37.0 (1.457") < a ≤ 37.5 (1.476") 37.5 (1.476") < a ≤ 38.0 (1.496")

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SP(X)100 and ABN100

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 15 15 < Ω ≤ 25 25 < Ω ≤ 35 35 < Ω ≤ 45	40.2 (1.583'') < a ≤ 40.7 (1.602'') 40.7 (1.602'') < a ≤ 41.2 (1.622'') 41.2 (1.622'') < a ≤ 41.7 (1.642'') 41.7 (1.642'') < a ≤ 42.2 (1.661'')
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 15 15 < Ω ≤ 25 25 < Ω ≤ 35	39.7 (1.563'') < a ≤ 40.2 (1.583'') 40.2 (1.583'') < a ≤ 40.7 (1.602'') 40.7 (1.602'') < a ≤ 41.2 (1.622'')
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 15 15 < Ω ≤ 25 25 < Ω ≤ 30	39.2 (1.543'') < a ≤ 39.7 (1.563'') 39.7 (1.563'') < a ≤ 40.2 (1.583'') 40.2 (1.583'') < a ≤ 40.7 (1.602'')
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 15 15 < Ω ≤ 25	38.7 (1.524'') < a ≤ 39.2 (1.543'') 39.2 (1.543'') < a ≤ 39.7 (1.563'')

A125

Differential Pressure: bar (psi)	Pump rpm: tr/mn	Shoe Tip to Housing bore: mm (inch)
ΔP ≤ 5 (72.5)	5 < Ω ≤ 10 10 < Ω ≤ 20 20 < Ω ≤ 30 30 < Ω ≤ 35	39.4 (1.551'') < a ≤ 39.9 (1.571'') 39.9 (1.571'') < a ≤ 40.4 (1.591'') 40.4 (1.591'') < a ≤ 40.9 (1.610'') 40.9 (1.610'') < a ≤ 41.4 (1.630'')
5 (72.5) < ΔP ≤ 7.5 (108.75)	5 < Ω ≤ 10 10 < Ω ≤ 20 20 < Ω ≤ 25	38.9 (1.531'') < a ≤ 39.4 (1.551'') 39.4 (1.551'') < a ≤ 39.9 (1.571'') 39.9 (1.571'') < a ≤ 40.4 (1.591'')
7.5 (108.75) < ΔP ≤ 10 (145)	5 < Ω ≤ 10 10 < Ω ≤ 20 20 < Ω ≤ 25	38.4 (1.512'') < a ≤ 38.9 (1.531'') 38.9 (1.531'') < a ≤ 39.4 (1.551'') 39.4 (1.551'') < a ≤ 39.9 (1.571'')
10 (145) < ΔP ≤ 15 (217.5)	5 < Ω ≤ 10 10 < Ω ≤ 15	37.9 (1.492'') < a ≤ 38.4 (1.512'') 38.4 (1.512'') < a ≤ 38.9 (1.531'')

Note: To avoid confusion, remember that the "X" means entirely different things in Abaque and Bredel nomenclature. The presence of an "X" in an Abaque model indicates a unique size (e.g. the A40 and the AX40 are not the same size and use different hoses). The presence of an "X" in the Bredel model indicates a new design. However, since the new and old use the same hose, the "X" in the Bredel model can safely be ignored here.

INSTALLING PERISTALTIC HOSES

Cross reference table for competitor pump model to Neptune hose part number:

Bredel Pump Model	Material	Neptune Part Number
SP(X)10	Natural Rubber Buna EPDM	Y218712 Y218713 Y218714
SP(X)15	Natural Rubber Buna EPDM	Y218938 Y218939 Y218940
SP(X)25	Natural Rubber Buna EPDM	Y218721 Y218722 Y218723
SP(X)32	Natural Rubber Buna EPDM	Y218724 Y218725 Y218726
SP(X)40	Natural Rubber Buna EPDM	Y218730 Y218731 Y218732
SP(X)50	Natural Rubber Buna EPDM	Y218733 Y218734 Y218735
SP(X)65	Natural Rubber Buna EPDM	Y218739 Y218740 Y218741
SP(X)80	Natural Rubber Buna EPDM	Y218745 Y218746 Y218747
SP(X)100	Natural Rubber Buna EPDM	Y218748 Y218749 Y218750

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