What Type of Hose is Right for You?

A Comprehensive Guide to Help Select, Install and Maintain the Vibrant Performance Flex Hose that is Best Suited for Your Application

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Flex Hose Options

Vibrant Performance offers 3 different styles of flex hose that are commonly used in car, truck, marine, and power sport applications. This detailed selection guide will help you determine which type of Vibrant Flex Hose is the right choice for your application and will help you pair that hose with the correct fittings.

E85 SUITABLE

Push-On Rubber Flex Hose

Sold in 10', 20' and 50' lengths
Size Range: 4AN to 12AN

Light Duty: Push-On Style Rubber Flex Hose

Pair with Vibrant Push-On Hose Ends **Part #22004-22912 only**.

Operating Temperature Range:	-40°F to 212°F (-40°C to 100°C)
Maximum Operating Pressure:	250psi (with appropriate clamps)

Fluid Compatibility:	Oil, Fuel (including E85), Coolant, Water
Recommended for:	Vacuum, Coolant Delivery, Crank Case Ventilation, Catch Can Setups.
Also Suitable for:	Fuel and Oil Delivery (*Hose must be secured to fittings with clamps. Regular maintenance checks are necessary*)
Not Suitable for:	High Temperature Applications (avoid placement nearby exhaust components). Also avoid using this type of hose on Fuel/Oil delivery applications that are left filled and sitting stagnant for long periods of time.

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Braided Flex Hose with Synthetic Rubber Liner

Sold in 2', 5', 10', 20' and 50' lengths
Size Range: 4AN to 20AN

Medium Duty: Braided Flex Hose with Synthetic Rubber Liner

Stainless Steel Braided Hose Part # range: *11904* to *11949*
Nylon Braided Hose Part # range: *11954* to *12003*
Pair with Vibrant Hose Ends Part **# 21xxx, 24xxx or 26xxx only**

Outer Braid Options:
Stainless Steel
Light Weight Black Nylon
Light Weight Black Nylon With Blue Tracer
Light Weight Black Nylon With Red Tracer

Operating Temperature Range:	-40°F to 300°F (-40°C to 150°C)
Maximum Operating Pressure:	1000psi to 500psi (depending on size)

Fluid Compatibility:	Fuel (including E85, Methanol), Oil, Coolant, Water
Recommended for:	Vacuum, Coolant Delivery, Crank Case Ventilation, Catch Can Setups, Fuel and Oil Delivery
Not Suitable for:	High Temperatures Applications (avoid placement nearby exhaust components). Also avoid using this type of hose on Fuel/Oil delivery applications that are left filled and sitting stagnant for long periods of time.

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Braided Flex Hose with PTFE Inner Liner

Sold in 5', 10' and 20' lengths Size Range: 4AN to 12AN

Heavy duty: Braided Flex Hose with PTFE Inner Liner

Stainless Steel Braided Hose Part # range: *18414* to *18442* Nylon Braided Hose Part # range: *18964* to *19002*
Pair with Vibrant Hose Ends **28xxx or 29xxx only**

Outer Braid Options:
Light Weight Stainless Steel
Ultra Light Weight Black Nylon

Operating Temperature Range:	-94°F to 480°F (-70°C to 250°C)
Maximum Operating Pressure:	4000psi to 1000psi (depending on size)

Fluid Compatibility:	Fuel (incl. Alcohol, Methanol, E85), Oil, Coolant
Recommended for:	Vacuum, Coolant Delivery, Crank Case Ventilation, Catch Can Setups, Fuel and Oil Delivery
Not Suitable for:	Natural Gas or Methane

Pressure, Temperature, Permeability and Flexibility

All hose assemblies have a finite service life. There are several factors that need to be considered when choosing a Vibrant Performance flex hose type to determine optimal service intervals for safe use.



Operating Pressure

All Vibrant Performance hose is designed for continuous operation at the maximum rated operating pressure for the specified hose type and size. In most cases, the operating pressure is 25% of the burst pressure of the hose. Thermal cycling of any non-metal hose may negatively impact its ability to maintain a leak free seal. Testing should be performed prior to install, and after install to verify suitability in actual operating conditions. If suitable, regular maintenance checks should be scheduled and carried out.

High Pressure Operation

200+ psi

Any hose assembly that sees pressures above 200 psi can be very dangerous and should be properly protected and secured to prevent severe movement that can occur during a failure that can be caused by external shock, mechanical or chemical damage. Pressure surges that exceed hose operating pressure will also shorten the life of the hose and must be considered. Pressure surges are not always indicated accurately on common pressure gauges, but can be monitored by means of electronic pressure sensors. If pressure surges are severe, a hose with a higher maximum operating pressure is recommended. Listed hose burst pressures are test result values only and apply to hose assemblies that are brand new.

Operating Temperature

Specified hose operating temperatures refer to the temperature of the media inside the hose. In high heat applications, hose degradation can lead to inner liner or even outer cover fatigue (in the forms of cracks or delamination) and reduced hose end retention. Continuous use near maximum operating temperatures will accelerate hose deterioration and reduce the service life of the hose.

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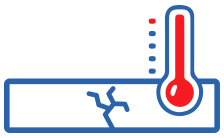
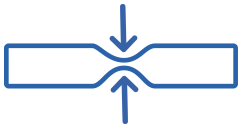
Ambient Temperature



Extreme ambient temperatures can reduce hose life. The outside cover layer of the hose can begin to form cracks or other signs of fatigue due to ambient thermal cycles and should be inspected regularly. Appropriate thermal sleeve should be used to protect the hose where it is within 6" of exhaust components or other ambient sources of high heat (Vibrant offers a variety of thermal hose sleeve options that provide outstanding protection to hoses exposed to elevated ambient temperatures).

Preventing Hose Collapse

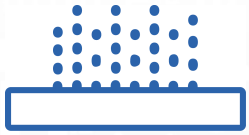


Recommended minimum bend radii should not be exceeded, especially at maximum operating pressures. Safe operating pressure, flow capacity and hose life all decrease when bend radii is tighter than the recommended minimum. Extreme negative pressures on -12 and larger hose can also be a concern for hose collapse. An internal support spring is recommended for these applications (Vibrant offers internal support springs for hose sizes ranging from 6AN to 20AN).

Hose Maintenance

Operating hose assemblies should be inspected frequently for signs of leaks, kinking, abrasion, bulging/deformation or any other indications of wear or damage. Hose used in fuel applications should be drained and blown out with clean compressed air or water at 150˚F as part of a regular internal inspection. More frequent inspections are required for any fuel system that circulates fuel back to the tank due to oxidization of the fuel which deteriorates the inner liner of the hose over time.

Permeability and Fluid Compatibility



PTFE, CPE, polyethylene and rubber are permeable materials. Liquid, vapor and gas may absorb through hose liners of these materials. The rate of permeation is determined by hose liner material (PTFE being the least permeable), fluid type, and operating conditions of the application. It should be noted that on a molecular level, small molecules can permeate through a hose liner, the permeation process does not cause any damage to the structure of the hose. A good indicator of hose permeation, is the ability to smell the media as it off-gases from the outside of the hose. Permeation is accelerated when fluid is stagnant in the hose. Draining hoses that are stagnant longer than 30 days is recommended.

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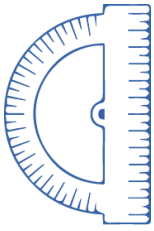
Flexibility and Minimum Bend Radius

To ensure optimal longevity of a hose assembly, some installation principles need to be maintained in regard to minimum bend radius and hose routing.

• A minimum length of 2x hose OD should be upheld between a hose end and the beginning of the hose bending. It is not recommended that the hose start bending immediately out of the hose end.

• If more bend is required, it should be implemented in the bend angle of the hose end. Allowing for changes in length during dynamic conditions is critical for safeguarding against premature hose fatigue or failure.



• A hose assembly should never be at full extended length when installed. A sufficient amount of slack should be incorporated to the hose assembly length that considers movement, system pressurization and thermal expansion during operation to prevent hose strain.

• Minimum recommended hose bend radius should not be exceeded. All minimum bend radii listed below are measured on the outside of the hose bend. It can easily be measured with a combination square or carpenter's square against the outside of the bend.

Minimum Bend Radius for Braided Flex Hose w/Synthetic Rubber Liner and Push-On Style Rubber Hose:

-4AN = 1.5 inch (38mm)

-6AN = 2.0 inch (50mm)

-8AN = 2.5 inch (63mm)

-10AN = 3.0 inch (76mm)

-12AN = 4.0 inch (102mm)

-16AN = 6.0 inch (152mm)

-20AN = 7.0 inch (178mm)

Minimum Bend Radius for Braided Flex Hose w/PTFE Liner

-4AN = 1.5 inch (38mm)

-6AN = 2.0 inch (50mm)

-8AN = 2.5 inch (63mm)

-10AN = 3.0 inch (76mm)

-12AN = 5.0 inch (127mm)

Note: An inner support spring (part number varies by size) is recommended for any hose assembly that requires a bend at or beyond the minimum outside bend radius- or in any -12AN or larger Braided or Push-on style hose that will see significant vacuum.