

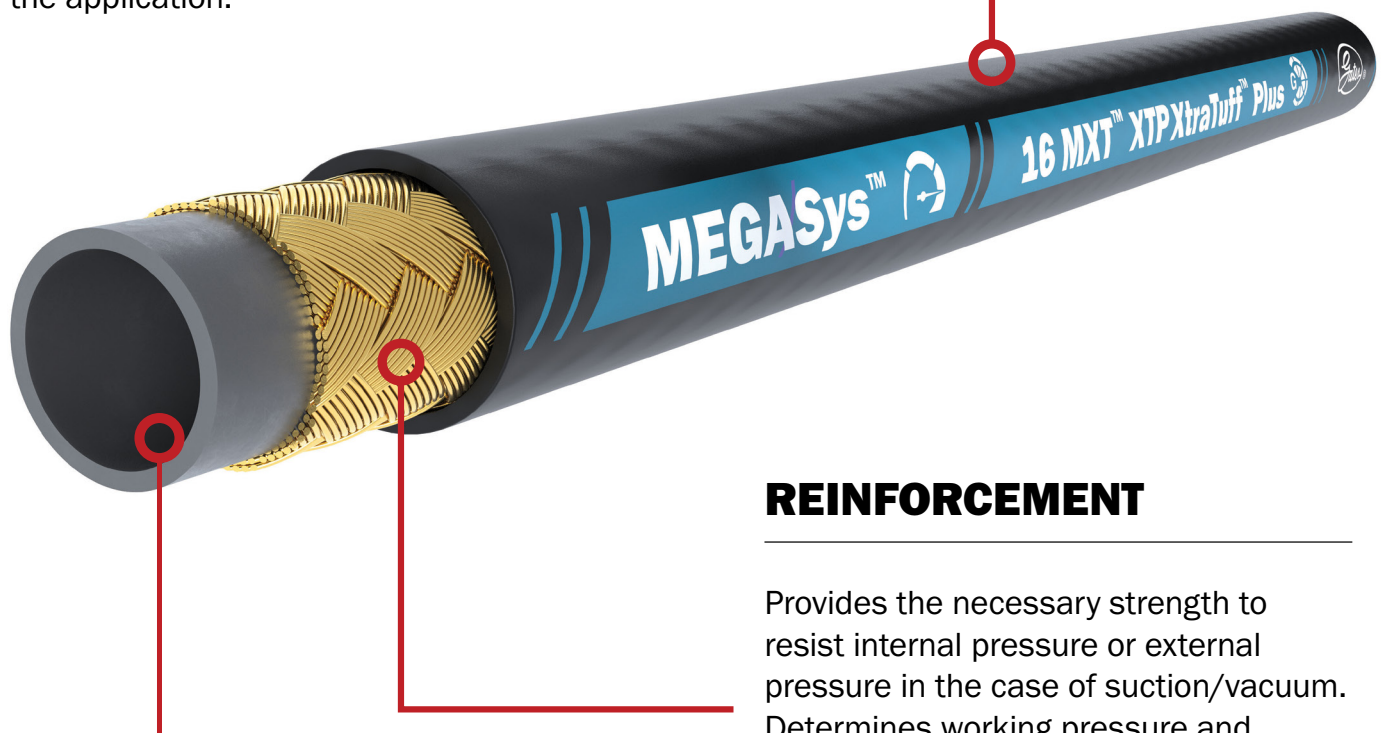


# SUPERIOR CONSTRUCTION

Hose is typically constructed of three parts: an inner tube that conveys material, reinforcement and a protective outer cover.

## COVER

Protects the tube and reinforcement from weather, ozone, abrasion, temperature and chemicals. Made of rubber, fiber braids, polymers or a combination depending on the application.



## TUBE

Made from a variety of compounds, the tube must resist damage and deterioration from conveyed material as well as the effects of temperature extremes.

## REINFORCEMENT

Provides the necessary strength to resist internal pressure or external pressure in the case of suction/vacuum. Determines working pressure and impulse resistance. Can be braided, spiraled or woven and constructed of natural fibers, synthetic materials, steel wire or a combination.



# UNDER THE COVER

Wire reinforcement provides the hose the necessary strength to resist internal and external pressures.

## Xpiral™

Exclusive patented technology from Gates, Xpiral woven spiral construction with four layers of high-tensile steel wire reinforcement enables weight savings and flexibility without compromising performance.



## BRAIDED

Made of wire or textile, with one or multiple layers. Typically used for medium to high-pressure applications.



## SPIRAL

Four or six alternating layers (or two or four for textile) of high tensile steel wire handle high to extremely high pressures for longer service life on high impulse applications.



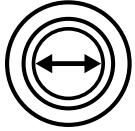
## HELICAL

Coil reinforcement prevents the hose from collapsing during suction transfer from reservoir to pump.



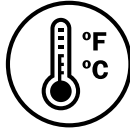


## SIZE



The hose I.D. must minimize pressure loss and prevent damage from heat generation caused by excessive turbulence.

## TEMPERATURE



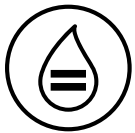
The hose must be capable of withstanding the system's minimum and maximum fluid and ambient temperatures.

## APPLICATION



Determine where or how the hose assembly will be used.

# STAMPED



The hose tube, cover and couplings must be compatible with the fluid being conveyed

## MATERIAL CONVEYED



Published hose working pressure must equal or exceed the normal system pressure, including spikes.

## PRESSURE



Identify the sealing methods the system uses and select the proper couplings and adapters.

## ENDS

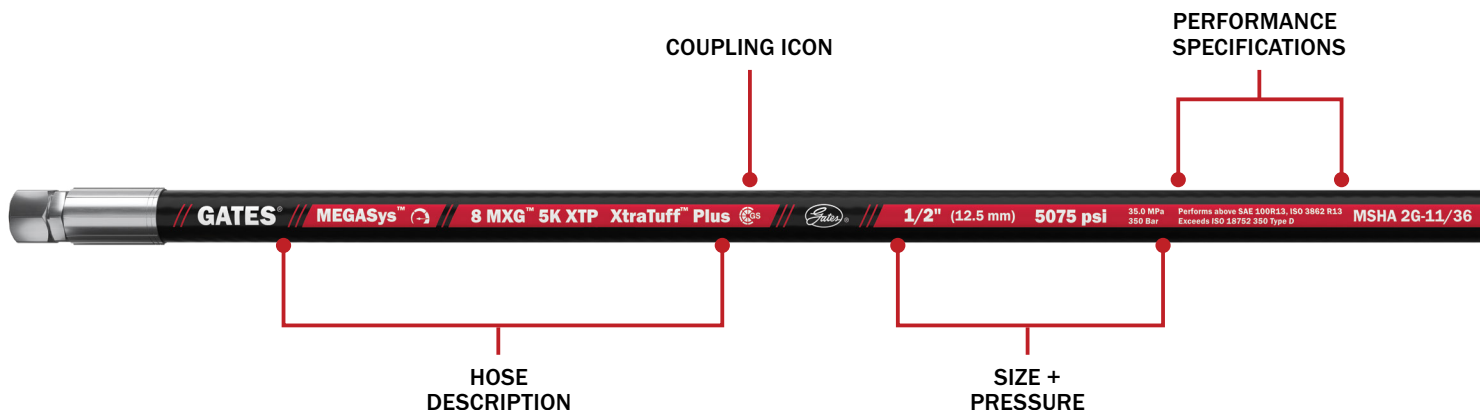


Determine the hose size needed to deliver the required fluid volume without losing pressure or adding unnecessary weight or bulk.

## DELIVERY

## HOW IT WORKS?

HYDRAULIC HOSE ASSEMBLIES ARE ENGINEERED FOR EXTREME REQUIREMENTS BUT THEIR LAYLINES DON'T HAVE TO BE COMPLICATED.



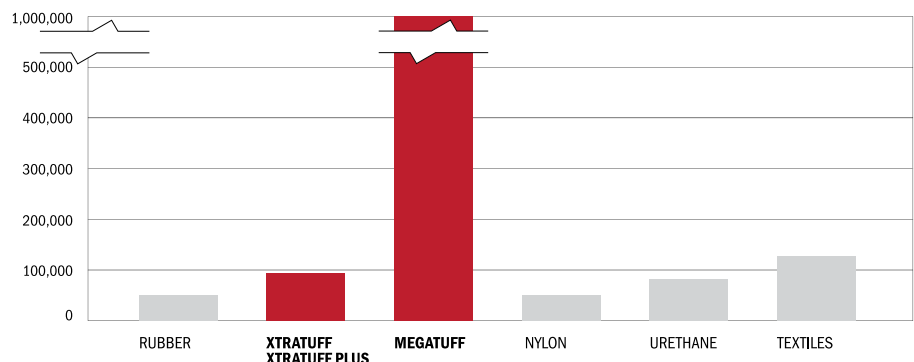


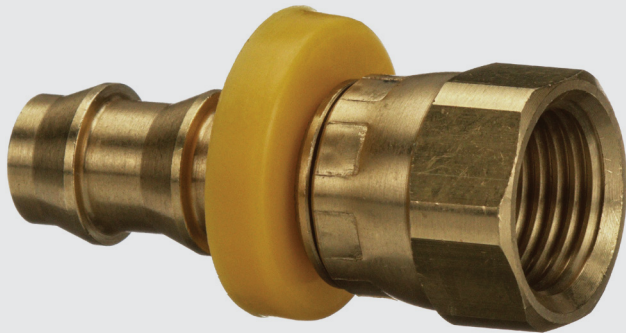
# UNRIVALED DURABILITY

**NOTHING IS HARDER** on hydraulic hose covers than constant abrasion. Rubbed against metal or other hose, most standard hydraulic hoses can't take the punishment.

|                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                              |                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------|
| <p><b>GATES MEGATUFF™</b></p> <p>Exceptionally resistant to abrasion. The specially bonded cover stays put and won't peel as some competitive hose covers do.</p> <ul style="list-style-type: none"><li>■ Maintain flexibility and minimum bend radius</li><li>■ Resistant to oil, ozone and UV rays</li><li>■ Tested to 1,000,000 impulse cycles without failure</li></ul> | <p><b>GATES XTRATUFF™</b></p> <p>Made of special hybrid compounds, Gates XtraTuff covers are versatile, flexible and easy to manage.</p> <ul style="list-style-type: none"><li>■ Increase service life</li><li>■ Lower maintenance</li><li>■ Eliminate the need for costly hose protectors</li></ul> <p><b>GATES XTRATUFF™ PLUS</b></p> <p>Engineered for exceptional durability in the most demanding fluid power applications.</p> <ul style="list-style-type: none"><li>■ 25X more abrasion resistant</li><li>■ Enhanced ozone resistance</li><li>■ No impact to flexibility</li><li>■ Exceptional durability</li></ul> | <p><b>GATES STANDARD</b></p> | <p><b>COMPETITOR</b></p> |
|                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                              |                          |

## ABRASION TESTING



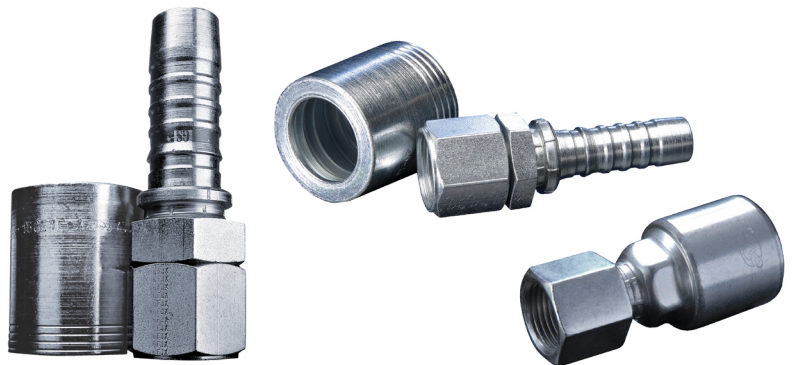


## FIELD-ATTACHABLE COUPLINGS

Available for wire-braid and textile reinforced hose. For 100R5 type hose, use tools commonly found in the field for convenient on site assembly. For Lock-On hose, simply insert the coupling to get a quick connect attachment without the need of clamps or ferrules.

## PERMANENT COUPLINGS

Require crimping equipment for assembly. Provide the highest level of performance. Available for all hose constructions.



# HOSE-COUPPLING INTERFACE

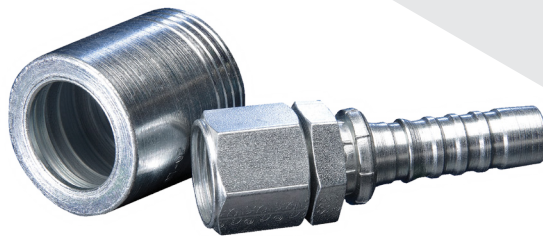
The key to safe hydraulics and stronger than any individual component.



# PROTECT YOUR INVESTMENT

## COUPLING PLATING

When hydraulic fittings rust, the base metal is eaten away by oxidation, eventually damaging the hydraulic system, contaminating fluids, compromising fittings and adjacent components, and creating leak paths.



### 96HOURS

GATES TUFFCOAT™

COMPETITOR



### 144HOURS

SAE INDUSTRY STANDARD

GATES TUFFCOAT

COMPETITOR



### 500HOURS

GATES TUFFCOAT

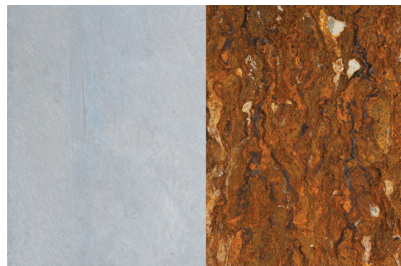
COMPETITOR



### 840HOURS

GATES TUFFCOAT™  
XTREME™

COMPETITOR



**Gates TuffCoat Xtreme** offers 840 hours of red rust corrosion resistance, more than 580% longer than the new 144-hour SAE industry standard



# PRACTICE SAFE HYDRAULICS™

Improperly maintained hydraulic equipment can lead to premature hose failure resulting in downtime, injury or even death. Gates Safe Hydraulics is a comprehensive preventive maintenance program that can help you properly maintain and service equipment for safe operation.



## GET TESTED

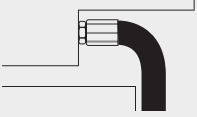
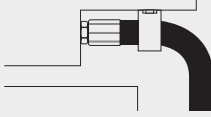
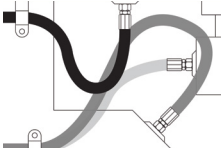
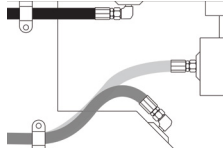
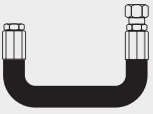
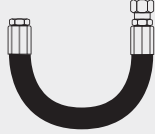
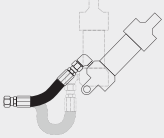
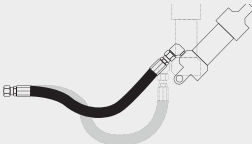
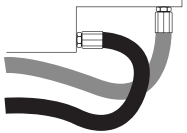
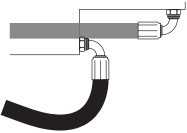
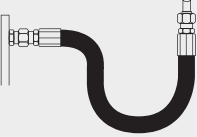
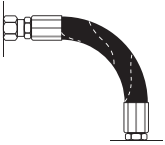
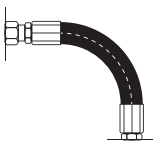
Safe Hydraulics Certification

- Maintaining a safe work environment
- Hose inspections & procedures
- Troubleshooting hose failures
- Proper hose & coupling selection
- Proper hose assembly & installation
- Crimper preventive maintenance



# SAFE HYDRAULICS™ HOSE ROUTING

Proper routing is essential for optimal performance, safety, efficiency and service life.

| <b>WRONG</b>  |                                             | <b>RIGHT</b>  |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
|               | <b>ABRASION</b><br>Avoid rubbing and abrasion and use proper clamps to eliminate unnecessary movement                        |               |
|               | <b>APPEARANCE</b><br>Route hose directly by using 45° and/or 90° adapters and couplings                                      |               |
|              | <b>COLLAPSE</b><br>Keep hose bend radius as large as possible to avoid flow restriction and collapse                         |              |
|             | <b>LENGTH CHANGE</b><br>Allow enough slack in hose line to accommodate length changes that occur when pressure is applied    |             |
|             | <b>MOVEMENT/FLEXING</b><br>Adequate hose length distributes movement on flexing applications, avoiding abrasion              |             |
|             | <b>STRAIN</b><br>Use elbows and adapters to relieve strain on the assembly and provide neater, more accessible installations |             |
|             | <b>TIGHT BEND</b><br>Use an adapter or bent coupling to avoid sharp bends when radius is below the required minimum          |             |
|             | <b>TWIST</b><br>Bend hose in the same plane as the motion of the port to prevent twisting and distortion                     |             |