PENFLEX

ENGINEERING BULLETIN #161

How Long Will a Metal Hose Last in Service?

Knowing how long a hose will last would make life easier. We could more accurately plan purchases for replacement parts and then schedule time to install those parts, all while reducing the likelihood of failures.

While this isn't a pipe dream—some companies have successfully determined average service life for hoses in specific applications through careful observation and record-keeping—it is unrealistic to expect that an answer can be given without such attention to data collection and the monitoring of outcomes.

Any information that could be given at the manufacturer's level would reflect how hoses behave in certain testing circumstances. We know that the same hose will last longer if pressure is reduced or bend radius is increased, and—conversely—that service life will be shorter if pressure is increased or bend radius is decreased.

It is impossible to test every possibility. And of course, we are only talking about two given variables that impact service life. Whether a hose is installed properly is another, and there are many more.

RETESTING TO REAFFIRM SERVICE LIFE

Some refineries and chemical plants look to their suppliers to retest hoses to ascertain whether they are "still good." Such a process can give users a false sense of certainty, mistaking a hose that has been successfully retested as one that will last for another, often unspecified, stint in service.

This is misguided.

While pressure testing can be used to determine the continuing strength of a hose, it will not predict its remaining life span. We have seen retested hoses put back in service only to fail a week later.

Passing such a test does not negate the unknown impact of exposure to corrosive media, harsh environments, bending, twisting, intermittent flow, vibration, and improper handling. With this is mind, a retesting agency should not be responsible for how much longer a hose will last in service.

WHEN TO TAKE A HOSE OUT OF SERVICE

Without data on how a hose operates under certain circumstances—which can only be collected by the end user—we cannot accurately predict how long a hose will last. The challenge then becomes when to take a hose out of service to avoid premature failures. And there's no exact science to it.

We recommend regular inspections using the checklist below to help maintenance personnel identify potential problems. If any of the indicators are observed, replacements should be considered.

Keeping track of observations, and how long each hose lasts in every application, will, overtime, yield the kind of data that will allow users to predict service life for hoses in their facility.

HOSE ASSEMBLY FIELD INSPECTION CHECKLIST

	If any of these items are observed, replacement should be considered.
	Loose, broken, bulged, frayed, or worn braid
	Deformation of the hose, including twisting, kinking, denting, flat spots
	Coupling slippage, cracks, severe dents, or excess corrosion
	Traces of media on or around the assembly
	Loose or damaged guard or covers
	Indications of corrosion of the hose or braid
	Loose fitting attachments
	Hose assembly rubbing or making contact with adjacent machinery or piping
	Unreadable or missing identification or tag if this information is required