Continuing Education for the Fire Fighter

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Fire Hose

Module 1

Chapter 15

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LEARNING OBJECTIVES

Explain basic fire hose characteristics.

Describe different causes of and prevention methods for hose damage.

Identify basic inspection, care, and maintenance methods for fire hose.

Compare various uses for hose appliances and tools.

Describe basic hose rolls.

Explain basic hose loads and finishes.

LEARNING OBJECTIVES

Compare various methods to make preconnected hose loads for attack lines.

Explain the methods used for supply hose lays.

Recognize different methods for handling hoselines.

Describe methods for advancing hoselines in various ways.

List the considerations that can impact operating attack hoselines.

Couple and uncouple a hose.

Inspect and maintain a fire hose.

EACH TYPE OF FIRE HOSE TRANSPORTS WATER FOR ON-SCENE OPERATIONS.

Supply

- From hydrant/water supply to apparatus

Attack

- Water or other agents at increased pressure

TO BE RELIABLE FIRE HOSE MUST BE CONSTRUCTED, USED, AND MAINTAINED APPROPRIATELY.

Common Construction

- Flexible
- Watertight
- Smooth rubber or neoprene lining
- Covered by durable jacket

Common Configurations

- Single-jacket
- Double-jacket
- Rubber single-jacket
- Hard-rubber or plastic noncollapsable

HOSE SIZE MEASUREMENTS IN DIAMETER REFER TO THE INTERNAL DIAMETER.

HOSE SIZE MEASUREMENTS IN LENGTH REFER TO A MANUFACTURED SECTION OF HOSE.

- Suction supply
- Soft sleeve hose
- Hard suction

FIRE HOSE COUPLINGS ARE USED TO MAKE CONNECTIONS TO HOSE AND EQUIPMENT.

Designed to

- Form continuous hoseline
- Connect hoses to nozzles, hydrants
- Connect to pumper connections and FDCs

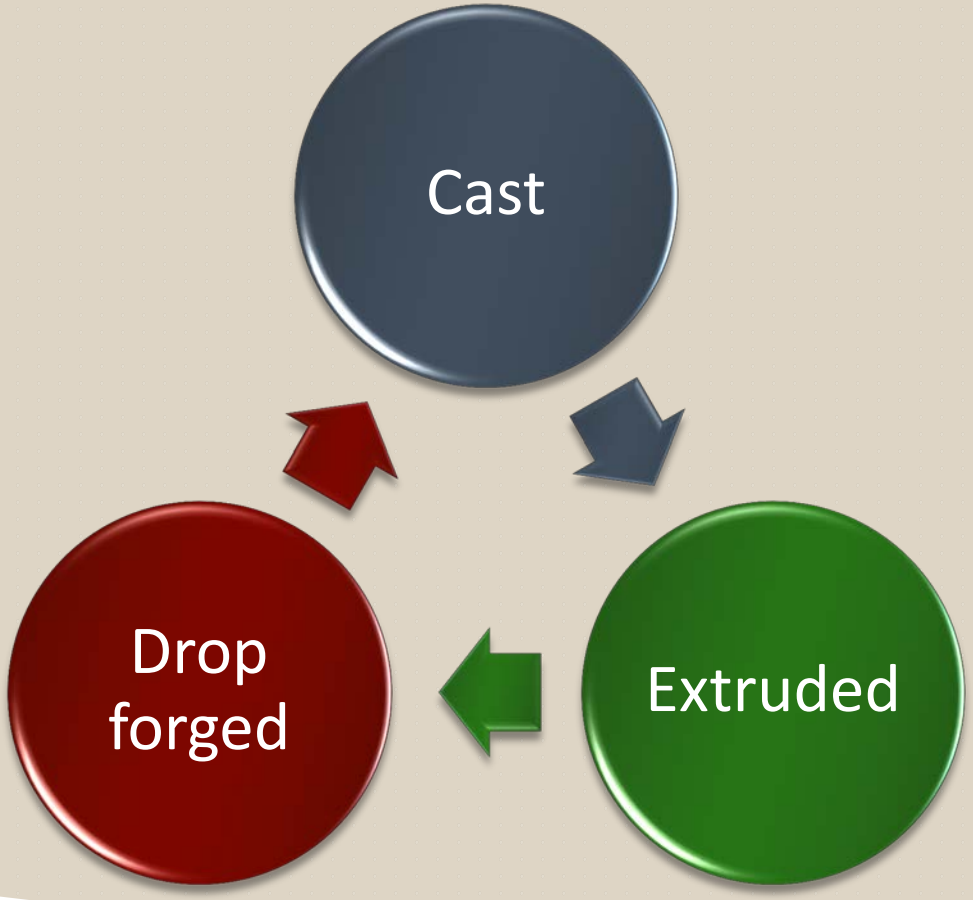
National Standards

- NFPA® 1963
- Can share between departments

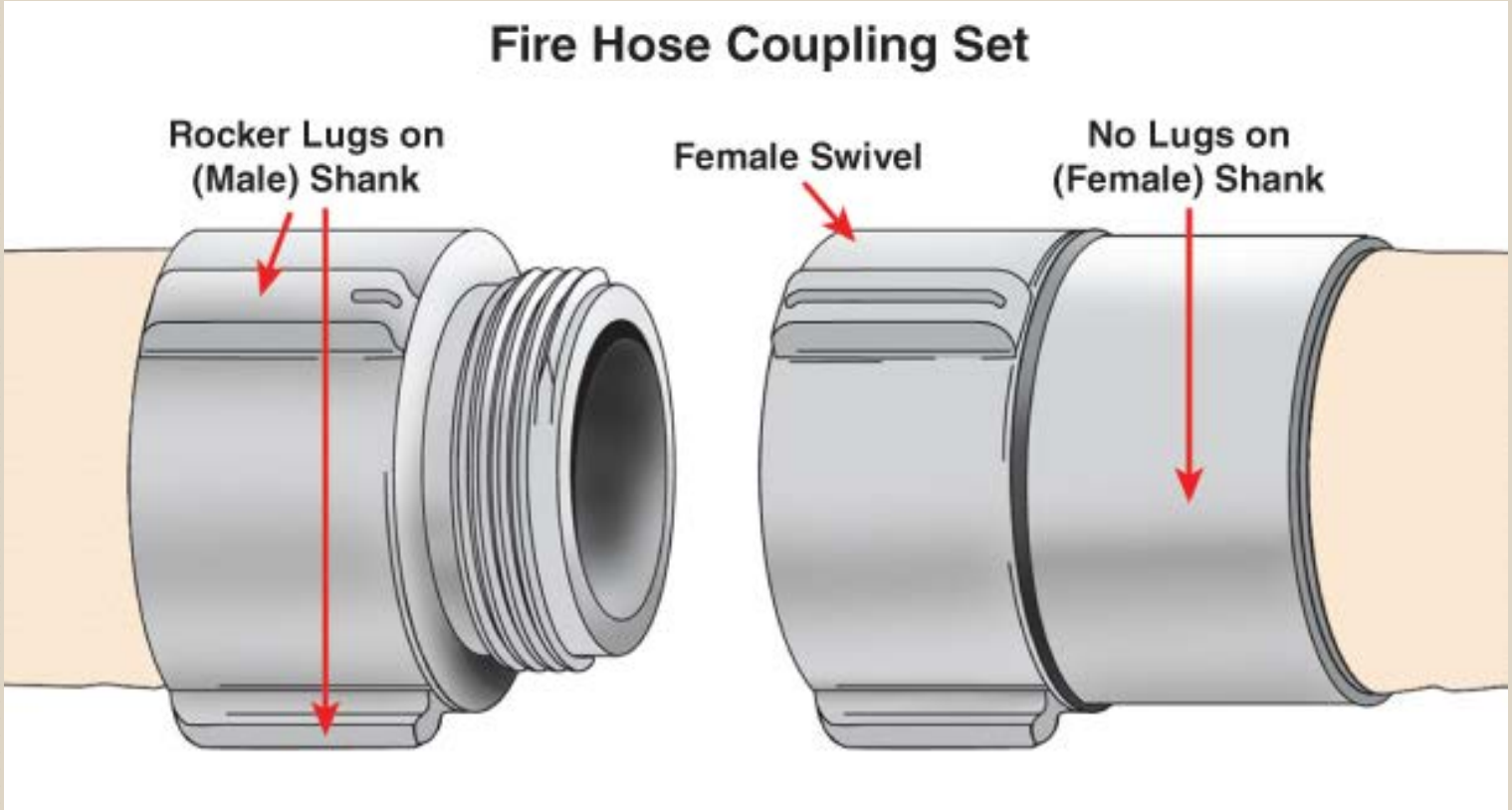
Made of

- Durable, rustproof materials
- Various alloys

FIRE HOSE COUPLINGS ARE CATEGORIZED BY THE WAY THEY ARE MANUFACTURED.



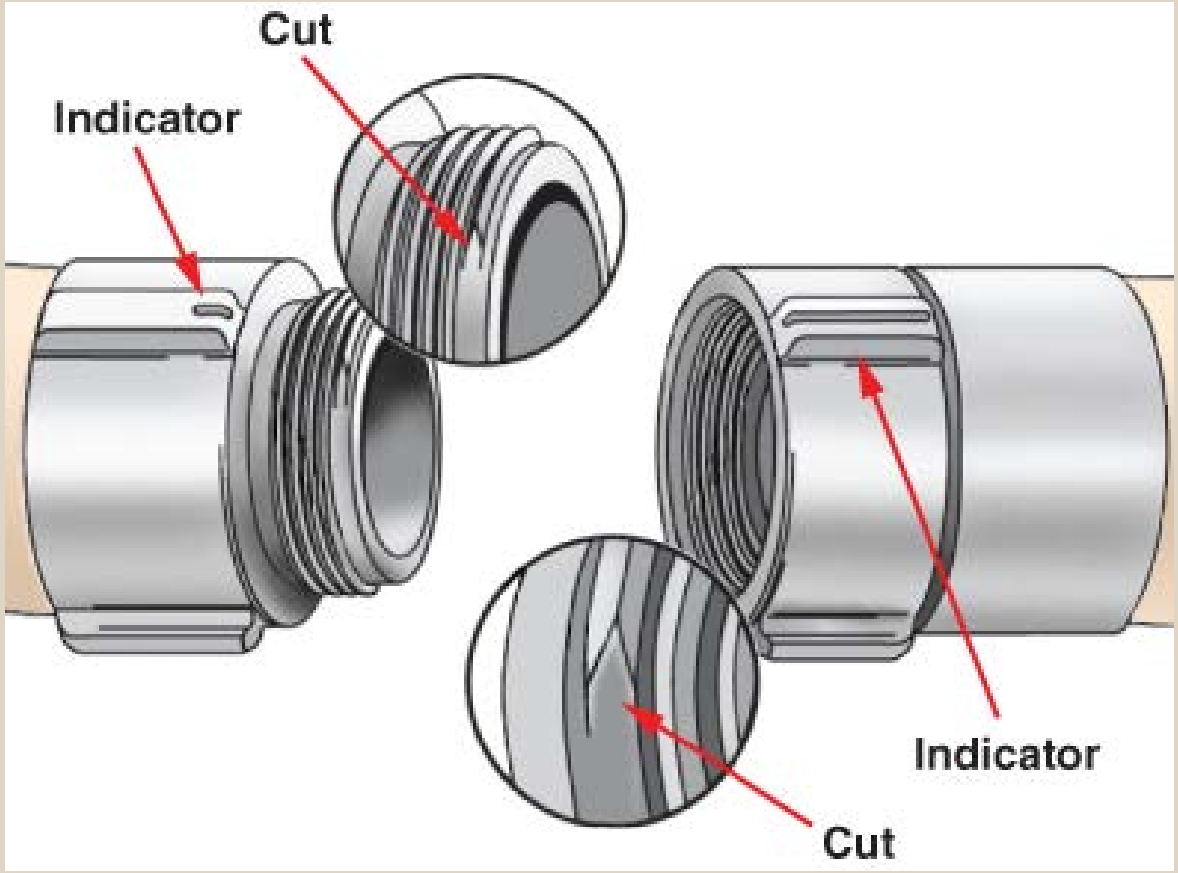
THREADED COUPLINGS HAVE MALE AND FEMALE PARTS.



CAUTION

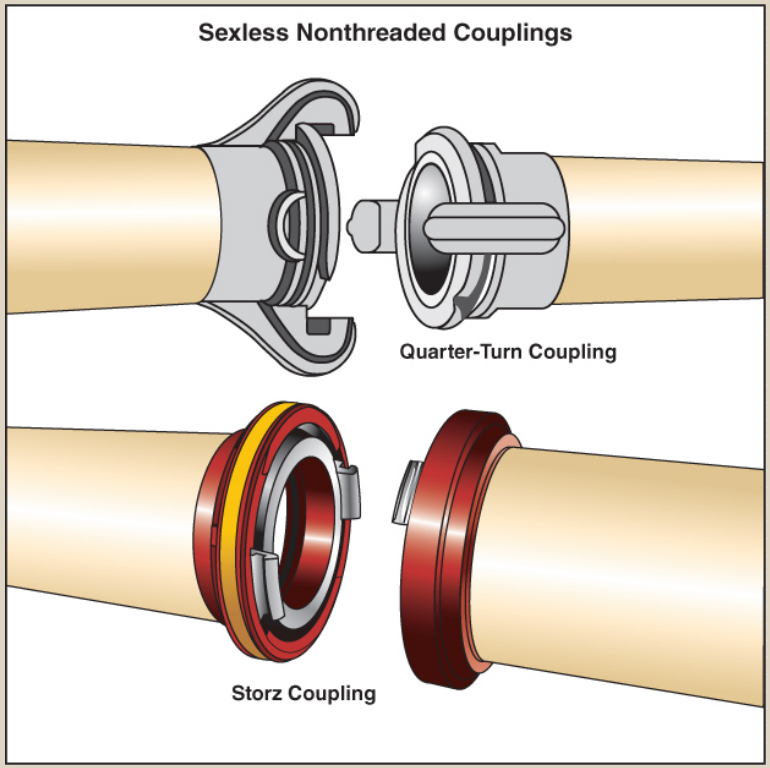
Connect couplings hand tight to avoid damage to the coupling and gasket.

COUPLINGS HAVE OTHER PARTS INCLUDING DIFFERENT CUTS, SIZES, AND GASKETS.



LUGS AND HANDLES HELP TO TIGHTEN AND LOOSEN HOSE CONNECTIONS.

NONTHREADED COUPLINGS ARE CONNECTED WITH LOCKS OR CAMS.



MECHANICAL DAMAGE CAN OCCUR IN SEVERAL WAYS TO A FIRE HOSE.

Slices, rips, abrasions, crushed, cracked

THERE ARE MANY WAYS TO PREVENT MECHANICAL DAMAGE.

- Avoid contact with rough, sharp objects
- Protect with hose roller or folded salvage cover
- Clear broken glass from window sills
- Prevent vehicles from driving over hose
- Use hose ramps or bridges

THERE ARE MANY WAYS TO PREVENT MECHANICAL DAMAGE.

- Open, close slowly to avoid water hammer
- Use chafing blocks
- Avoid excessive pressure
- Deploy away from debris
- Change position of folds
- Clean hose before reloading

THERMAL DAMAGE CAN RESULT FROM EXPOSURE TO EXCESSIVE TEMPERATURES.

Caused by excessive heat/cold, direct flame contact

Can char, melt, weaken, dehydrate linings

THERE ARE MAY WAYS TO PREVENT THERMAL DAMAGE TO FIRE HOSE.

Heat

Cold

ORGANIC DAMAGE TO FIRE HOSE CAN WEAKEN THE JACKET AND LEAD TO RUPTURES.

Mildew and mold

FIREFIGHTERS SHOULD KNOW THE METHODS TO PREVENT ORGANIC DAMAGE.

THERE ARE SEVERAL TYPES OF CHEMICAL DAMAGE THAT MAY OCCUR TO FIRE HOSE.

- Petroleum products, paints, acids, alkalis
- Battery acid
- Runoff water
- Leftover water can form sulfuric acid

PREVENTING CHEMICAL DAMAGE REQUIRES FOLLOWING SPECIFIC CLEANING PRACTICES.

- Avoid chemical exposure
- Scrub, wash contaminated hoselines
- Test periodically
- Dispose of according to local SOPs

CORROSION IS A TYPE OF DAMAGE THAT WEAKENS OR DESTROYS METAL HOSE PARTS.

Brass coupling

Aluminum coupling

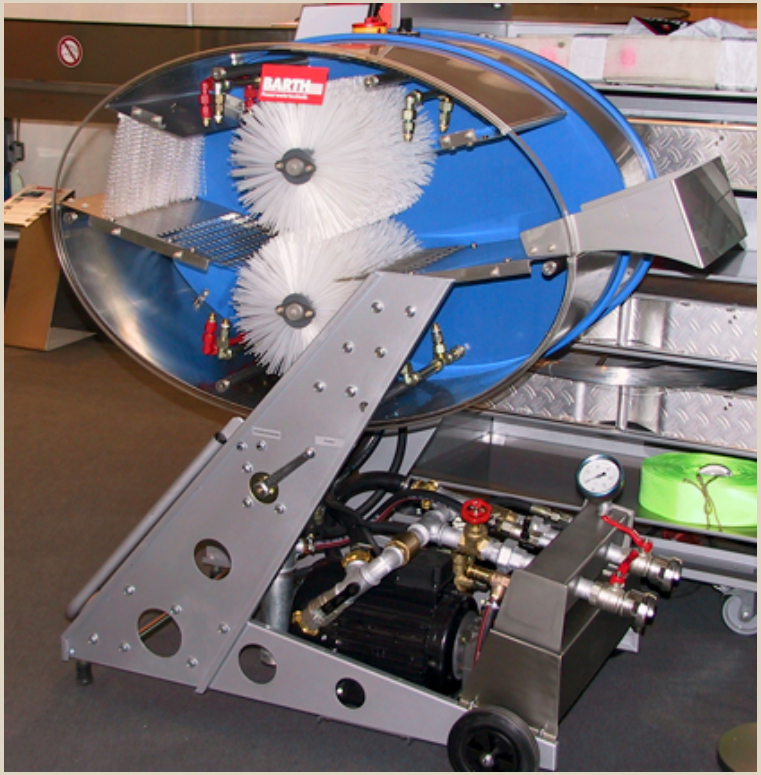
AGE DETERIORATION IS CAUSED BY LEAVING A HOSE IN AN APPARATUS FOR A LONG TIME.

Prevention

- Remove and replace hose loads periodically
- Reload loosely with new folds
- Remove from tower once dry

INSPECTING A FIRE HOSE REQUIRES FOLLOWING A SCHEDULE AND REPORTING PROCESS IF DEFICIENCIES ARE FOUND.

THE METHOD OF WASHING A HOSE WILL DEPEND ON THE TYPE OF HOSE.



DRYING A HOSE ALSO REQUIRES DIFFERENT METHODS FOR VARIOUS TYPES OF HOSE.

STORING HOSE IS USUALLY DONE ON RACKS THAT MAY BE MOUNTED OR STAND FREE.

CAUTION

Never store solvents, petroleum products, or other chemicals close to fire hose and couplings.

THERE ARE SEVERAL METHODS TO PREVENT DAMAGE TO STORED HOSE STORED IN RACKS.

- Store in clean, well ventilated room
- Avoid exposure to sunlight, pack loosely
- Protect couplings, roll hose with male end inside
- Prevent dirt from collecting in sexless couplings

FIRE HOSE COUPLINGS CAN BE DAMAGED EVEN THOUGH DESIGNED TO BE DURABLE.

WHEN CARING FOR FIRE HOSE COUPLINGS YOU SHOULD FOLLOW THESE GUIDELINES.

General

- Avoid dropping, dragging
- Do not drive over
- Inspect when washing
- Twist swivel in soapy water
- Clean threads
- Inspect, replace gaskets

If coupling swivel difficult to spin

- Washing machine insufficient
- Submerge in warm, soapy water
- Clean male threads with brush
- Lubricate
- Replace damaged gaskets

HOSE APPLIANCES INCLUDE A VARIETY OF HARDWARE USED IN CONJUNCTION WITH HOSE.

Valves

- Ball
- Gate
- Butterfly
- Clapper

Valve Devices

- Wye
- Siamese
- Water thief
- LDH - thief and manifold
- Hydrant valve

Fittings

- Adapters
- Reducers

Intake strainers

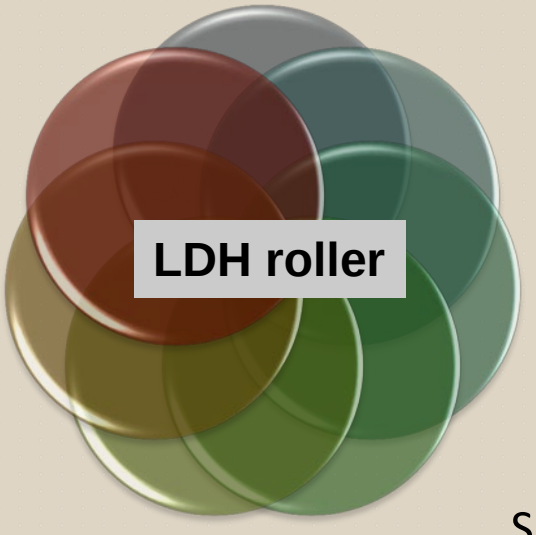
- Attached to drafting end of hard suction when pumping
- Designed to keep debris from entering
- Preventing from resting on bottom

THERE ARE SEVERAL TYPES OF HOSE TOOLS THAT FIREFIGHTERS SHOULD KNOW ABOUT.

Hose roller

Hose strap, rope, chain

Hose jacket



Chafing block

Hose clamp

Hose bridge/ramp

Spanner, hydrant wrench, rubber mallet

CAUTION

Never stand over the handle of a hose clamp when applying or releasing it. The handle or frame may pop open and swing upward violently.

SUMMARY

Fire hose is a basic tool used to carry water from its source to the point it is needed to extinguish a fire.

Firefighters must know the types of hose their department uses, how it is constructed, the way hose can be damaged, and how to care for it.