

# **FLEXIBLE PIPELINES**

Rubber hoses and clutches

Teflon hoses

Polyxyloxanic pipes

## **The types of hoses:**

rubber, with braid construction (without tip light fixture)

rubber, like PMБ for helicopters

teflon hoses and shim construction clutches

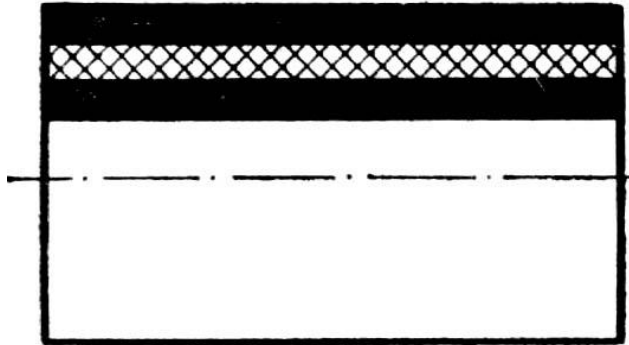
heat resistant connecting pipes

Used in fuel, hydraulic, lubricating, air and others systems with metal pipelines

# Flexible pipeline

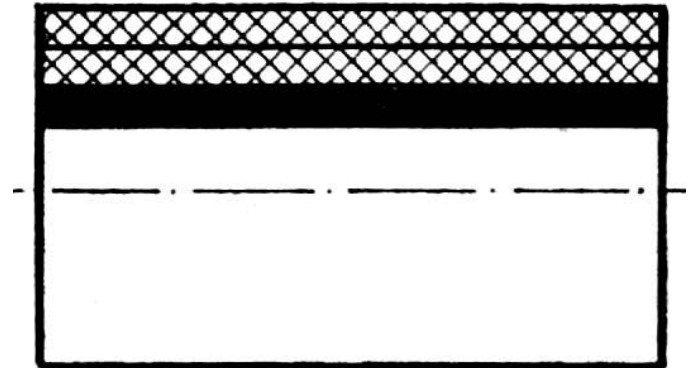
*The rubber hoses of a braid construction*

are divided into 8 structural groups



1 – with one thready cotton paper braid and outer rubber coat

2 – with two thready cotton paper braids

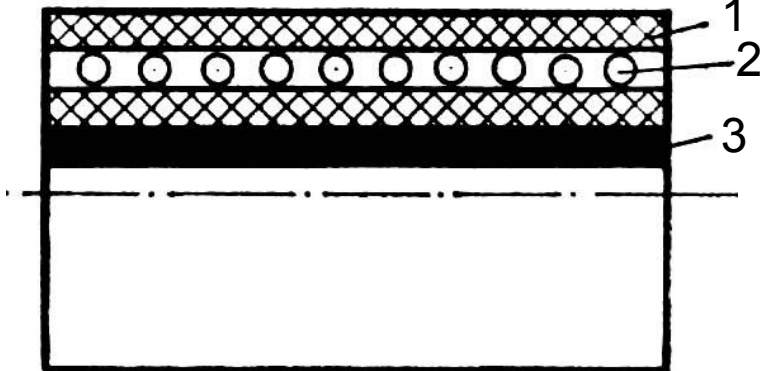


3 – with two thready cotton paper braids and wire spiral between them

1-cotton paper braid

2-steel wire

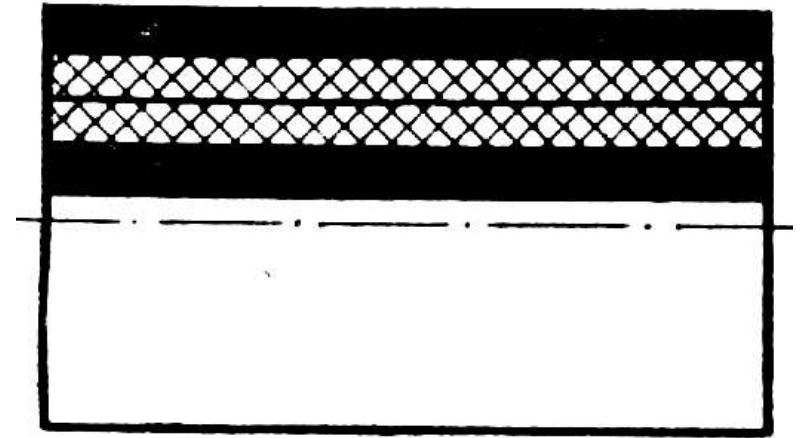
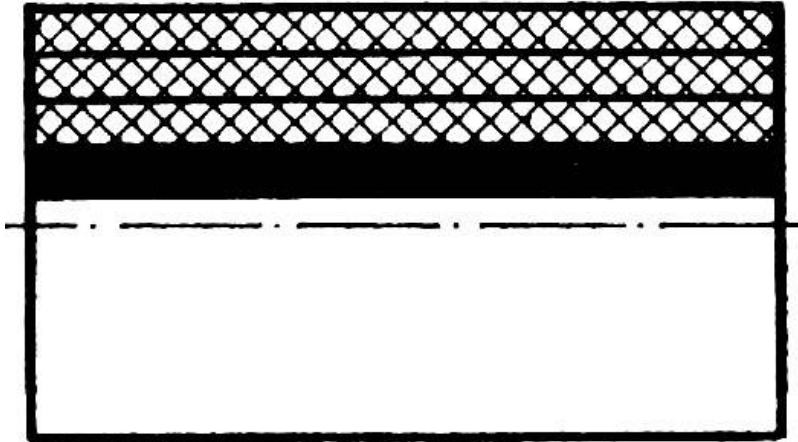
3-inner rubber coat



# FLEXIBLE LINE

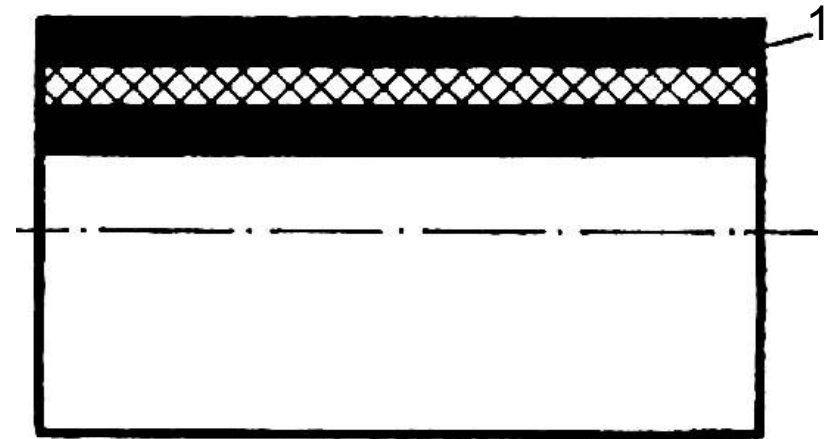
## RUBBER HOSES ARMORY CONSTRUCTION

4 – with two thread cotton insulation and external rubber layer



5 – with three thread cotton insulation

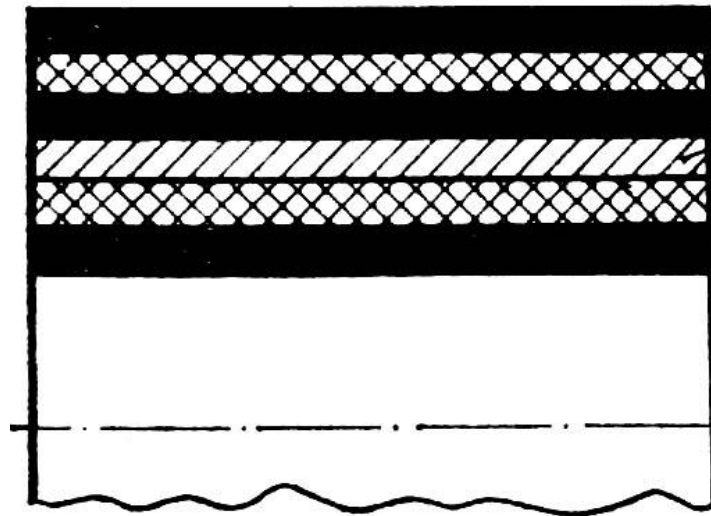
9 – with one cotton insulation and external rubber layer  
(with big radial dilatation, then hose 1-st и 4-th групп)



1-external rubber layer

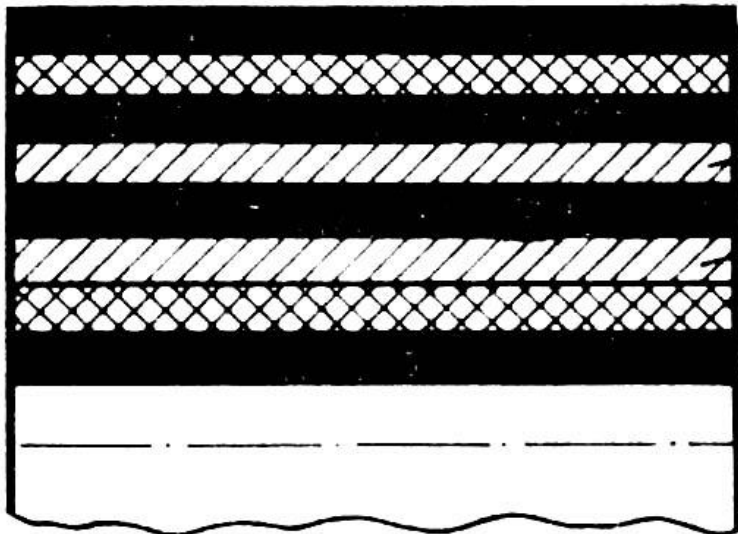
# FLEXIBLE LINE

## RUBBER HOSES ARMORY CONSTRUCTION



sheath

21 – with one sheath and  
external rubber layer or  
cotton insulation with glue-coating



sheath

sheath

22 – with two sheath and  
external rubber layer or  
cotton insulation with glue-coating

## Flexible pipelines

### Rubber hoses braid construction

Hoses of 3<sup>rd</sup> and 4<sup>th</sup> groups use as flexible connection clutch-durits

Number of hose includes:

Number of construction group (first or second digits)

Type of hose to destination (letter after number): Y-fuel, hydraulic liquid; M-oil, K-oxygen. On the hose with metallic braid П, Г-air, hydraulic liquid; B-air; T-fuel

Nominal inside diameter (one or two digits after letter)

The greatest workability pressure, which hose can resist (two or three digits after dash)

Name of plant manufacturer (letters after digits pointed on pressure)

Number of plant consignment (two, three or four digits after letter) denotation of plant manufacturer

Date (month and year) of manufacturing (romanian and after dash arabic digits)

Term of exploitation of hose type Y and M is 5 years and 6 months it is three years of exploitation, one year of storage, one year and six months on laid-up aggregate

## Flexible pipelines

Rubber houses of braid construction

Example of marking

**22T16-125K274 XII-94**

- the hose with two metallic braids
- for fuel system (T)
- inside diameter 16 mm
- Max work pressure 12.5 Mpa
- K-code of plant manufactor
- technological party
- made in december 1994

Houses that located on the engines and  
depression bars additionally houses with  
special rubber

Range of work temperatures

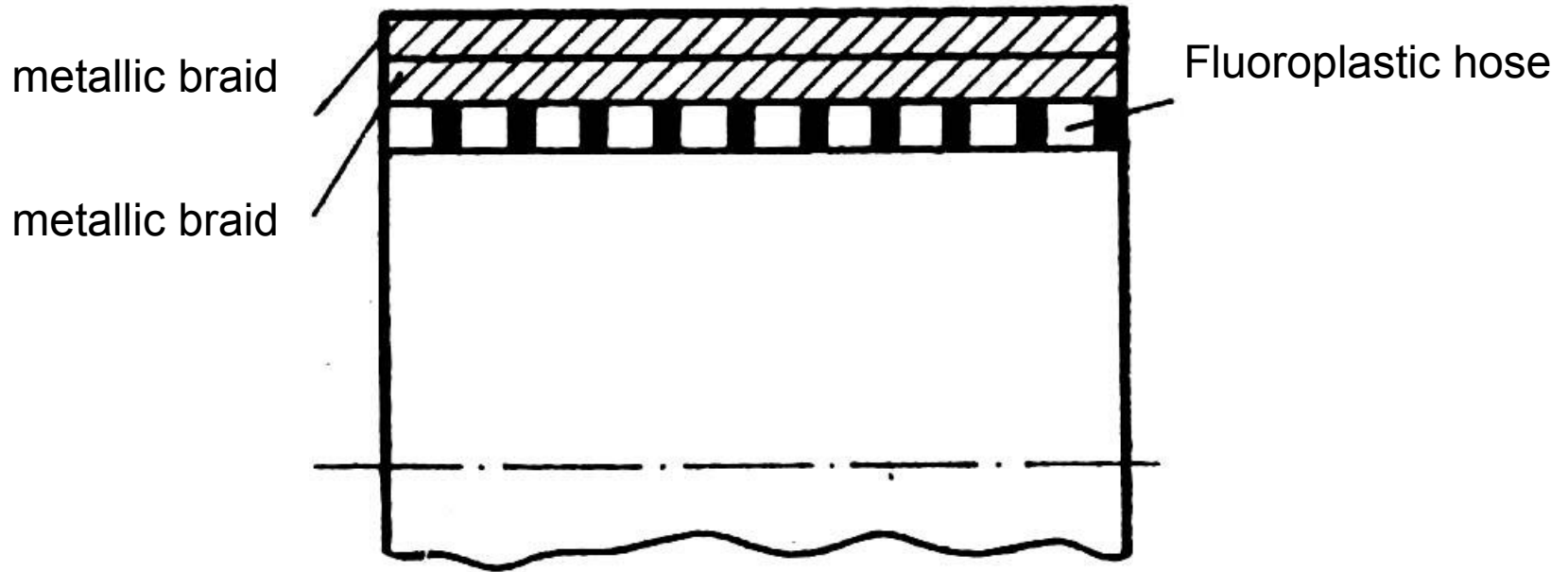
Y from -65 to 100

M from -55 to 100

T from -35 to 100

# FLEXIBLE PIPELINE

## *Fluoroplastic hose*



Consists of fluoroplastic tube with one or few metallic braids

They are used in different fuels, oils and some aggressive liquids

According to working pressure they are divided into 3 groups:

Up to 11 MPa

Up to 21 MPa

Up to 28 MPa

# FLEXIBLE PIPELINE

## *ply-wrapped hose*

### **Consists**

of inner rubber chamber, one or few fabric strips and outer rubber layer

### **Are used**

As flexible pipelines and connecting clutches

### **Inner diameter**

4-142 mm

### **Working pressure**

1-st group: 0.3 MPa

2-nd group: 0.5 MPa

3-rd group: 0.7 MPa

4-th group: 1.3 MPa

In fuel, hydraulic and oil systems they are  
**forbidden**



# Hoses

## *Connective Nipples*

Used for connections the metal pipes in the air-conditioning system, works at temperature up to 250 °C.

Depends on geometry divided into three groups:

- smooth
- corrugated
- shouldered

**Designations:** ПТС-52-120, ПТС-52-120 Bp, ПТС-52-120x5 Bp.

**ПТС** – heat-resistant connective nipple

**52** – inner diameter 52 mm

**120** – length 120 mm

**5** – five-ply

**Bp** – with inner rubber layer

On shouldered nipples in designation adding Roman III and Arabic, shows the width of the collar millimeters **ПТС-52-120-III-15**

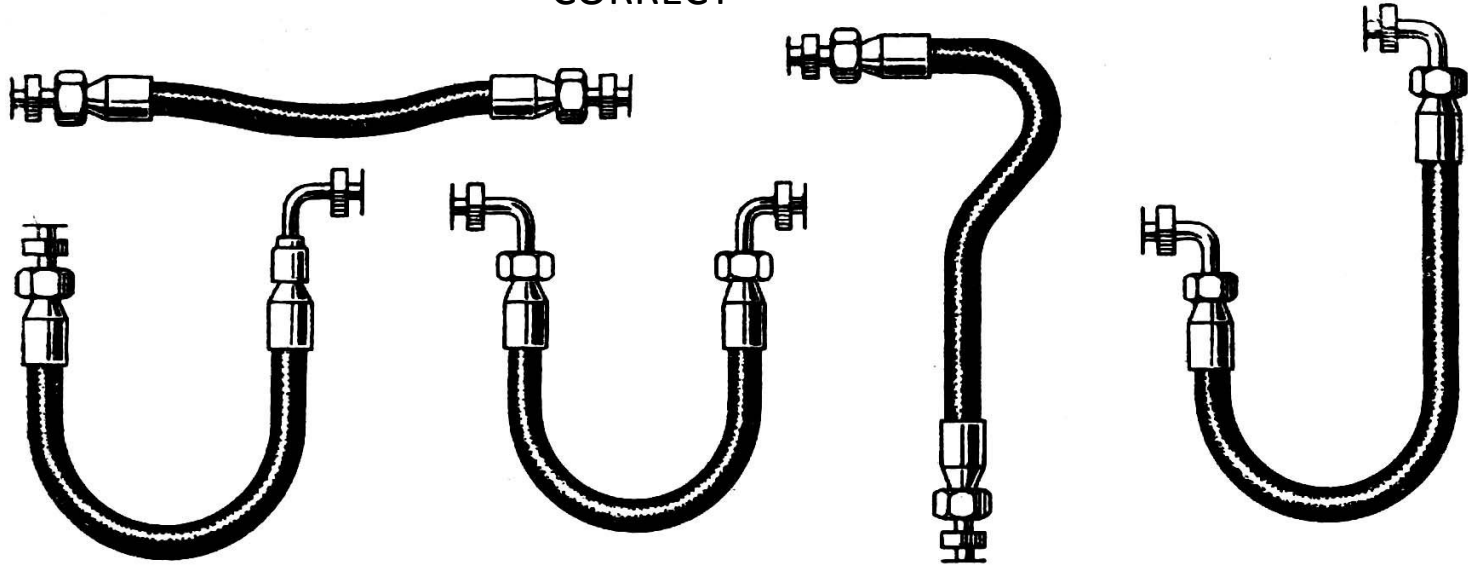
On corrugated nipples adding Roman II:

**ПТС-52-120-II**

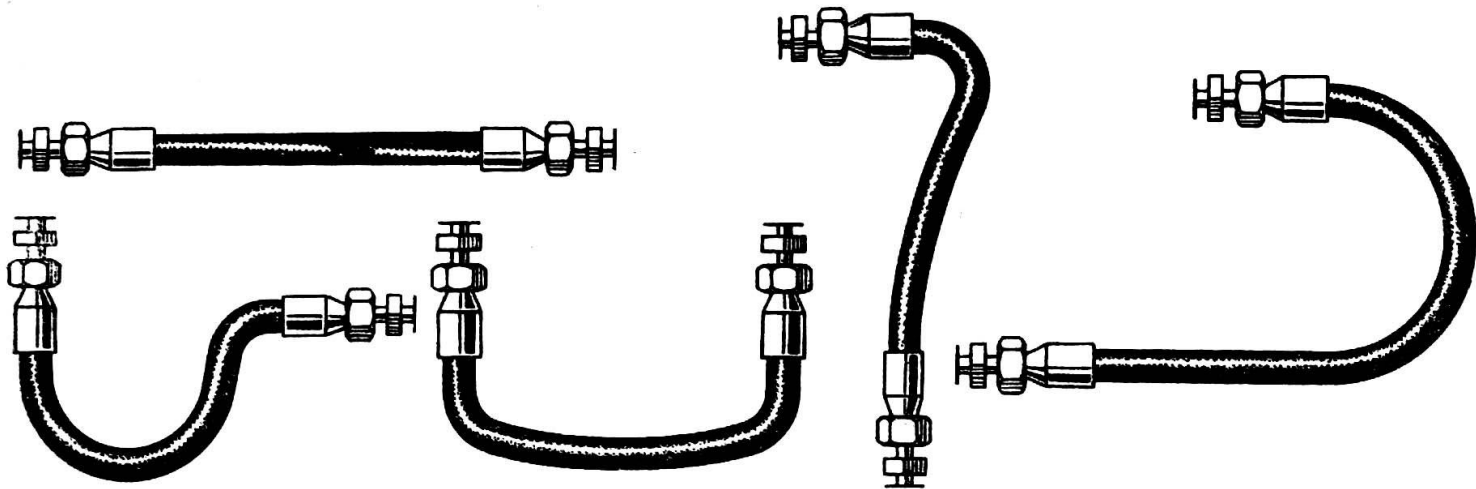
# Hoses

## *Mounting*

CORRECT



UNCORRECT



# HOSES

## *Sleeves imperfections*

Failure of the outer layer (wear, tears, cracks)

Destruction of cotton braid and denudation of the wire spiral

Overhang of dangling wires of metal braiding

Failure the parts of fittings ( the thread of nut and flow nipples faces of nut )

Creeping out sleeves tips

Cranking pipe nipples and pipes at the tip

Leaking of hydraulic fluid in the seal and the sleeve

## *Couplings imperfections*

Though cracks of external layer

Bulging of external rubber layer

Trimming the outer layer in the field clamps installation

Leaking of fluid , not eliminated by tightening of clamps

Delamination front side to a depth of 5 mm

Leak or sweat the fluid on coupling