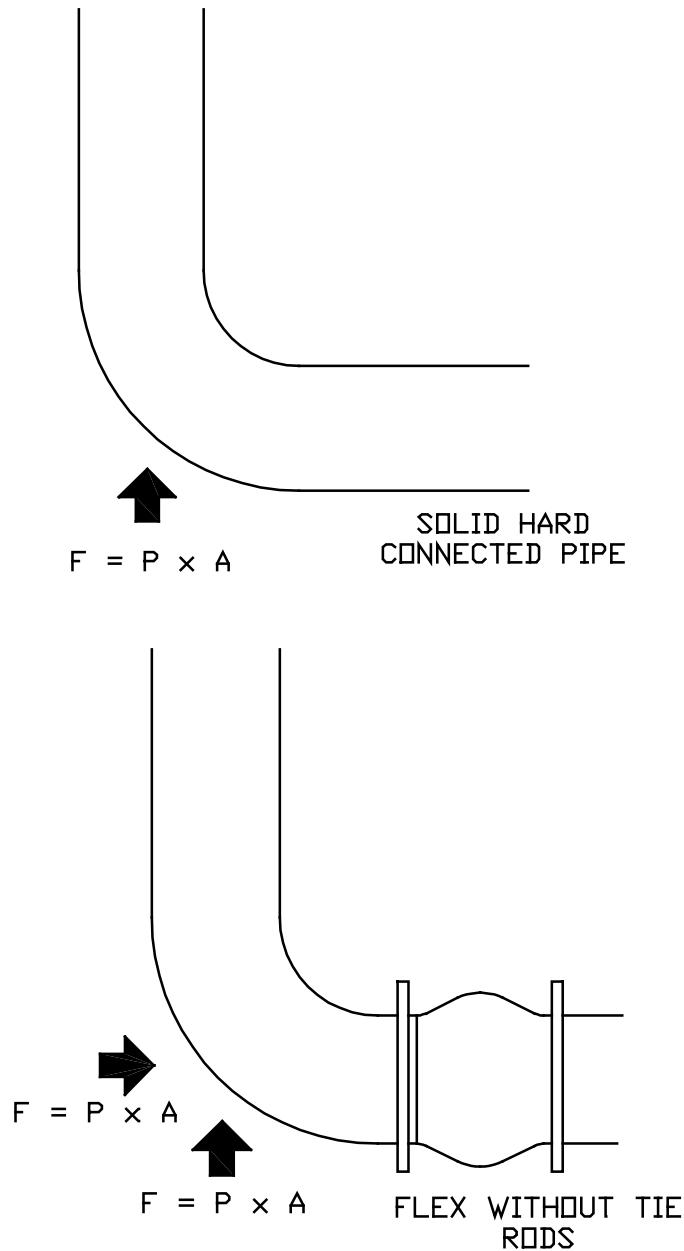


# DESIGN FORCES IN RISERS

(STATIC UNBALANCED HYDRAULIC FORCES AT BOTTOM OF RISER)



THESE ARE CONCENTRATED FORCES THAT ACT AT THE POINT OF TERMINATION OF THE PIPE OR RISER RUN.

## HYDRAULIC FORCES / BOTTOM OF RISER

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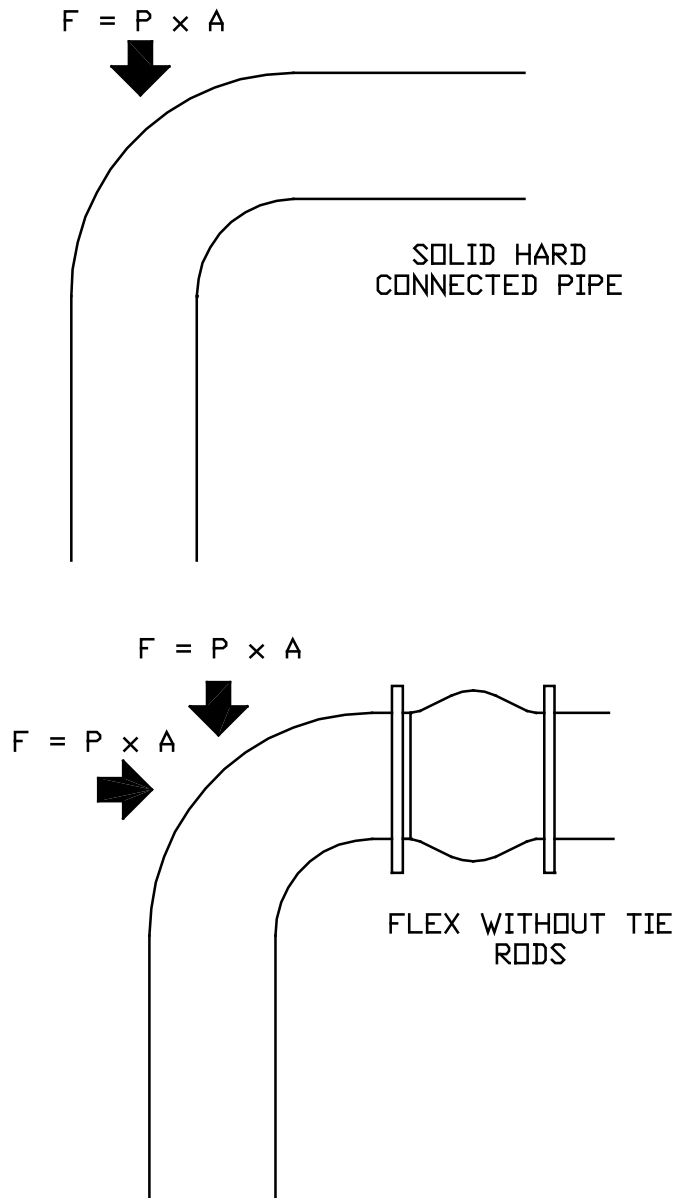
DOCUMENT:

R1.0



# DESIGN FORCES IN RISERS

(STATIC UNBALANCED HYDRAULIC FORCES AT THE TOP OF RISER)



THESE ARE CONCENTRATED FORCES THAT ACT AT THE POINT OF TERMINATION OF THE PIPE OR RISER RUN.

## HYDRAULIC FORCES / TOP OF RISER

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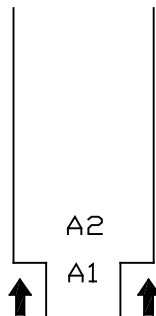
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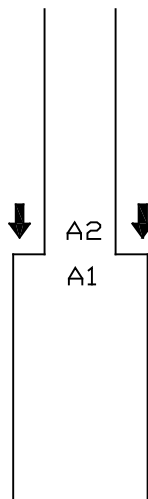
# DESIGN FORCES IN RISERS

(STATIC UNBALANCED HYDRAULIC FORCES AT SECTION CHANGES IN A RISER)



$$F = P \times (A2 - A1)$$

SMALL TO LARGE SECTION CHANGE



$$F = P \times (A1 - A2)$$

LARGE TO SMALL SECTION CHANGE

THESE ARE CONCENTRATED FORCES THAT ACT AT THE POINT SECTION CHANGE IN THE RISER RUN.

## HYDRAULIC FORCES / RISER SECTION CHANGES

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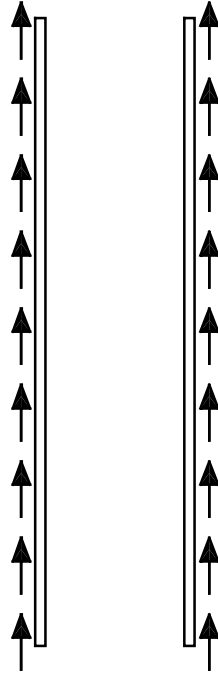
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R1.0



# DESIGN FORCES IN RISERS

(PIPE WEIGHT REACTION FORCES IN A RISER)



$$F = \sum W$$

CONTINUOUSLY DISTRIBUTED WEIGHT LOAD

THIS IS THE REACTION TO A LOAD THAT IS DISTRIBUTED CONTINUOUSLY ALONG THE LENGTH OF THE RISER.

## WEIGHT REACTION LOADS-FORCES / DISTRIBUTED ALONG RISER

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