
APPENDIX E4M

FRICITION LOSS FOR WATER IN METERS PER 100 METERS OF PIPE

Troy J. Skillen
Mechanical Engineer
Bechtel Power Corporation
Frederick, Maryland

Example E4M.1:

Calculate hf in NPS 4 (DN 100) steel-schedule 40 pipe in meters per 100 m with flow of 100 gallons per minute (gpm).

(1 U. S. gallon = 3.7853 liters).

Refer to Table E1.5 in App. E1.

From App. E4:

hf per 100 ft of length of pipe = 0.624 ft (for 100 gpm)

100 ft = 30.48 m

hf in 100 ft length of pipe = 0.624 ft

or = 0.624 * 0.0348 m = 0.190 m

hf in 30.48 m length of pipe = 0.190 m

hf in 100 m length of pipe = $\frac{0.190 \text{ m}}{30.48} * 100 \text{ m}$

or = 0.623 m

Example E4M.2:

Calculate hf in NPS 6 (DN 150) steel-schedule 40 pipe in meters per 100 m with flow of 1000 gallons per minute (gpm).

(1 U. S. gallon = 3.7853 liters).

Refer to Table E1.5 in App. E1.

From App. E4:

hf per 100 ft of length of pipe = 6.17 ft (for 100 gpm)

100 ft = 30.48 m

hf in 100 ft length of pipe = 6.17 ft

or = $6.17 * 0.0348 \text{ m} = 0.215 \text{ m}$

hf in 30.48 m length of pipe = 0.215 m

hf in 100 m length of pipe = $\frac{0.215 \text{ m}}{30.48} * 100 \text{ m}$

or = 0.705 m

Example E4M.3:

Calculate hf in NPS 24 steel-schedule 40 pipe in meters per 100 m with flow of 60,000 gallons per minute (gpm).

(1 U. S. gallon = 3.7853 liters).

Refer to Table E1.5 in App. E1.

From App. E4:

hf per 100 ft of length of pipe = 22.3 ft (for 60,000 gpm)

100 ft = 30.48 m

hf in 100 ft length of pipe = 22.3 ft

or = $22.3 * 0.0348 \text{ m} = 0.776 \text{ m}$

hf in 30.48 m length of pipe = 0.776 m

hf in 100 m length of pipe = $\frac{0.776 \text{ m}}{30.48} * 100 \text{ m}$

or = 2.55 m