```
                           ┌─────────────────────────────────────────────────────────────────┐
                           │                                          No                        │
       ┌────────┐          │  x                              ┌───────────┐          ┌──────┐    │
      ( Start )           │  Σ (avg flows) = Flow_avg         │ j = j + 1 │ ◄──────  │ j = 0│    │
       └───┬────┘          │ i=1                    Yes        └─────┬─────┘          └───┬──┘    │
           │               │  x              ◄────◄ j = Pipe count ◄─┐                    │ Yes   │
           ▼               │  Σ (desired flows) = Flow_desired        │                    │       │
  ┌─────────────────┐      │ i=1                                      ▼                    ▲       │
  │ Flow_avg = 10   │      │                          ┌───────────────────────┐    No  ◄─────────┐ │
  │ Flow_desired = 0│      │                          │ Calculate desired     │ ────► ┌────────┐  │
  │ Stop_init_calc=0│      │                          │ and average flow      │       │ m > 1  │  │
  │ m = 0           │      │                          │ for pipe(j)           │       └────────┘  │
  └────────┬────────┘      └──────────────────────────┴───────────────────────┴──────────────────┘
```

$$\sum_{i=1}^{x} (\text{avg flows}) = \text{Flow\_avg}$$

$$\sum_{i=1}^{x} (\text{desired flows}) = \text{Flow\_desired}$$

Flow_avg = 10
Flow_desired = 0
Stop_init_calc = 0
m = 0

Calculate desired and average flow for pipe(j)

j = j + 1

j = 0

m > 1

abs(Flow_avg − Flow_desired) > error

x = 0
m = m + 1

x = x + 1

Stop_init_calc = 0

Generate height/flow data. Create curve fitted polynomial

x = Pipe count

Stop_init_calc = 1

n = 1

x = Pipe count

n = pipe(x) sections + 1

m = 1
n = 1

Calculate initial values in all sections of pipe

m > 1
n = 1

Calculate input values

n = n + 1

Iterate with Preissmann scheme and calculate values

Initial data = data at iteration m

End