Symbol Scorecard – Capital Cost Estimation

TBWS, 2nd Ed., Chapter 5

Key Equations

$$C^0_{BM} = F^0_{BM} \cdot C^0_P \qquad\qquad \text{Page 159}$$

$$C_{BM} = F_{BM} \cdot C^0_P \qquad\qquad (5.6)$$

$$C_P = C^0_P \cdot F_P \cdot F_M \qquad\qquad (5.11)$$

$$F_{BM} \neq F_{BM}^{0} \cdot F_P \cdot F_M \qquad \qquad \textbf{Page 168}$$

$$F_{BM} = B_1 + B_2 \cdot F_P \cdot F_M \qquad \qquad \textbf{(A.4)}$$

$$C_{TM} = 1.18 \sum_{i=1}^{m} C_{BM,i} \qquad \qquad \textbf{(5.15)}$$

$$C_{GR} = C_{TM} + 0.50 \sum_{i=1}^{m} C_{BM,i}^{0} \qquad \qquad \textbf{(5.16)}$$

Symbol	Cost	Comment

C_P^0	Purchase cost of equipment
	  - at manufacturer's site
	  - at base conditions
		Depends on equipment type and size.
		
		Displayed by CAPCOST©

C_P	Purchase cost of equipment
	  - at manufacturer's site
	  - at process conditions
		Depends on equipment type, size, pressure, and MOC.
		Not displayed by CAPCOST©

C_{BM}^0	Bare module cost - at base conditions	Includes direct + indirect equipment costs. Obtainable from CAPCOST
C_{BM}	Bare module cost - at process conditions	Includes direct + indirect equipment costs. Displayed in CAPCOST
C_{TM}	Total module cost This is *FCI* for small projects.	Includes direct + indirect + contingency & fee costs. Displayed in CAPCOST in Utilities sheet.
C_{GR}	Grass roots cost This is *FCI* for large projects.	Includes direct + indirect + contingency & fee + auxiliary facilities costs. Displayed in CAPCOST in Utilities sheet.

F_P	Pressure factor	Depends on equipment type and process pressure. Not displayed by CAPCOST$^©$
F_M	Material factor.	Depends on equipment type and material. Not displayed by CAPCOST$^©$
F_{BM}^0	Bare module cost factor - at base conditions	Includes direct + indirect equipment costs. Obtainable from CAPCOST
F_{BM}	Bare module cost factor - at process conditions	Includes direct + indirect equipment costs Obtainable in CAPCOST
B_1	Parameter to calculate F_{BM} for heat exchangers, pumps, towers, and vessels.	Depends on equipment type. Displayed in CAPCOST in Equipment Cost Data sheet.
B_2	Parameter to calculate F_{BM} for heat exchangers, pumps, towers, and vessels.	Depends on equipment type. Displayed in CAPCOST in Equipment Cost Data sheet.