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Space Engineering - Thermal design handbook - Part 13: Fluid Loops

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**Space Engineering - Thermal design handbook - Part 13:
Fluid Loops**

Ingénierie spatiale - Manuel de conception thermique -
Partie 13 : Boucles fluides

Raumfahrttechnik - Handbuch für thermisches Design -
Teil 13: Flüssigkeitskreisläufe

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Table of contents

| | |
|--|-----------|
| European Foreword..... | 29 |
| 1 Scope..... | 30 |
| 2 References | 31 |
| 3 Terms, definitions and symbols | 32 |
| 3.1 Terms and definitions | 32 |
| 3.2 Abbreviated terms..... | 32 |
| 3.3 Symbols..... | 34 |
| 4 General introduction | 46 |
| 4.1 Fluid loops | 47 |
| 4.2 Comparison between fluid loops and alternative systems | 48 |
| 4.2.1 Passive thermal insulations..... | 48 |
| 4.2.2 Thermoelectric devices | 48 |
| 4.2.3 Phase change materials (pcm)..... | 49 |
| 4.2.4 Heat pipes..... | 50 |
| 4.2.5 Short-term discharge systems..... | 50 |
| 5 Analysis of a fluid loop | 52 |
| 5.1 General..... | 52 |
| 5.2 Thermal performance | 53 |
| 5.3 Power requirements..... | 56 |
| 6 Thermal analysis | 58 |
| 6.1 General..... | 58 |
| 6.2 Analytical background..... | 58 |
| 6.2.1 Heat transfer coefficient | 58 |
| 6.2.2 Dimensionless groups..... | 60 |
| 6.2.3 Simplifying assumptions..... | 61 |
| 6.2.4 Temperature-dependence of fluid properties..... | 61 |
| 6.2.5 Laminar versus turbulent fluid flow | 63 |
| 6.2.6 Heat transfer to internal flows..... | 63 |
| 6.2.7 Heat transfer to external flows..... | 65 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | | |
|----------|--|------------|
| 6.3 | Thermal performance data..... | 67 |
| 6.3.1 | Heat transfer to internal flow | 67 |
| 6.3.2 | Heat transfer to external flows..... | 83 |
| 7 | Frictional analysis | 92 |
| 7.1 | General..... | 92 |
| 7.2 | Analytical background..... | 92 |
| 7.2.1 | Introduction | 92 |
| 7.2.2 | Fully developed flow in straight pipes..... | 93 |
| 7.2.3 | Temperature-dependence of fluid properties..... | 97 |
| 7.2.4 | Several definitions of pressure loss coefficient..... | 98 |
| 7.2.5 | Entrance effects | 100 |
| 7.2.6 | Interferences and networks | 101 |
| 7.2.7 | Flow chart | 102 |
| 7.3 | Pressure loss data | 105 |
| 7.3.1 | Straight pipes | 105 |
| 7.3.2 | Bends..... | 106 |
| 7.3.3 | Sudden changes of area | 113 |
| 7.3.4 | Orifices and diaphragms | 116 |
| 7.3.5 | Screens..... | 119 |
| 7.3.6 | Valves | 120 |
| 7.3.7 | Tube banks | 121 |
| 7.3.8 | Branching of tubes | 124 |
| 8 | Combined thermal and frictional analysis..... | 125 |
| 8.1 | General..... | 125 |
| 8.2 | Analogies between momentum and heat transfer | 125 |
| 8.2.1 | The Reynolds analogy | 125 |
| 8.2.2 | The Prandtl analogy | 128 |
| 8.2.3 | The Von Karman analogy..... | 129 |
| 8.2.4 | Other analogies..... | 129 |
| 9 | Heat transfer enhancement | 130 |
| 9.1 | General..... | 130 |
| 9.1.1 | Basic augmentation mechanisms..... | 131 |
| 9.1.2 | Criterion for the evaluation of the several techniques | 132 |
| 9.1.3 | Index of the compiled data | 133 |
| 9.1.4 | Validity of the empirical correlations | 133 |
| 9.2 | Single-phase forced convection data | 136 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|---|------------|
| 10 Working fluids | 170 |
| 10.1 General | 170 |
| 10.2 Cooling effectiveness of a fluid | 170 |
| 10.2.1 Simplified fluid loop configuration | 172 |
| 10.2.2 Thermal performance of the simplified loop | 172 |
| 10.2.3 Power requirements of the simplified loop | 173 |
| 10.2.4 Several examples | 173 |
| 10.3 Properties of liquid coolants | 178 |
| 10.4 Properties of dry air | 212 |
| 11 Heat exchangers | 214 |
| 11.1 General | 214 |
| 11.2 Basic analysis | 217 |
| 11.2.1 Introduction | 217 |
| 11.2.2 Analytical background | 218 |
| 11.2.3 Exchanger performance | 221 |
| 11.3 Exchanging surface geometries | 236 |
| 11.3.1 Tubular surfaces | 237 |
| 11.3.2 Plate-fin surfaces | 240 |
| 11.3.3 Finned tubes | 246 |
| 11.3.4 Matrix surfaces | 248 |
| 11.4 Deviations from basic analysis | 249 |
| 11.4.1 Introduction | 249 |
| 11.4.2 Longitudinal heat conduction | 250 |
| 11.4.3 Flow maldistribution | 253 |
| 11.5 Manufacturing defects | 263 |
| 11.5.1 Introduction | 263 |
| 11.5.2 Variations of the flow passages | 263 |
| 11.5.3 Fin leading edge imperfections | 267 |
| 11.5.4 Brazing | 267 |
| 11.6 In service degradation | 271 |
| 11.6.1 Introduction | 271 |
| 11.6.2 Fouling | 271 |
| 11.7 Existing systems | 274 |
| 12 Pumps | 283 |
| 12.1 General | 283 |
| 12.2 Specified speed | 287 |
| 12.3 Net suction energy | 289 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | | |
|-----------|---|------------|
| 12.4 | Requirements for spaceborne pumps | 290 |
| 12.5 | Commercially available pumps | 291 |
| 12.6 | European pump manufacturers..... | 297 |
| 13 | System optimization..... | 298 |
| 13.1 | General..... | 298 |
| 13.2 | Basic analysis | 298 |
| 13.2.1 | Interface heat exchanger..... | 299 |
| 13.2.2 | Supply and return plumbing | 300 |
| 13.2.3 | Radiator | 301 |
| 13.3 | Special examples..... | 301 |
| 13.3.1 | Constraints based on source temperature..... | 302 |
| 13.3.2 | Constraints imposed by the integration | 305 |
| 14 | Two-phase flow..... | 309 |
| 14.1 | General..... | 309 |
| 14.2 | Pressure loss..... | 311 |
| 14.2.1 | Lockhart-martinelli correlation | 311 |
| 14.2.2 | Improvements upon martinelli correlation..... | 316 |
| 14.3 | Annular flow..... | 317 |
| 14.3.1 | Ideal annular flow model | 318 |
| 14.3.2 | Annular flow with entrainment model..... | 327 |
| 14.4 | Condensation in ducts | 341 |
| 14.4.1 | Condensing flow model..... | 341 |
| 14.4.2 | Variation of the vapor quality along the duct in the stratified model | 347 |
| 14.4.3 | Limits of validity of the stratified model..... | 349 |
| 14.4.4 | Annular flow model..... | 350 |
| 14.4.5 | Variation of the vapor quality along the duct in the annular model..... | 354 |
| 15 | Two-phase thermal transport systems | 357 |
| 15.1 | General..... | 357 |
| 15.1.1 | Evolution of thermal transport systems..... | 357 |
| 15.1.2 | Two-phase loop general layout | 358 |
| 15.1.3 | About the nomenclature of this clause..... | 361 |
| 15.2 | Tms trade-off study..... | 361 |
| 15.2.1 | TMS study baseline..... | 364 |
| 15.2.2 | TMS design concepts..... | 364 |
| 15.2.3 | Evaluation of tms concepts | 367 |
| 15.3 | Design for orbital average load | 370 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | | |
|-----------|--|------------|
| 15.3.1 | Phase change capacitor performance | 370 |
| 15.4 | Off-design operation | 376 |
| 15.4.1 | Temperature control | 378 |
| 15.4.2 | Instrumentation requirements | 381 |
| 15.5 | Radiator-loop interaction | 382 |
| 15.5.1 | Boosting radiator temperature with a heat pump | 383 |
| 15.5.2 | Thermal-storage assisted radiator | 388 |
| 15.5.3 | Steerable radiators | 391 |
| 15.5.4 | Radiators coupling | 402 |
| 15.6 | Capillary pumped loop (cpl) technology | 404 |
| 15.6.1 | Advantages of cpl systems | 408 |
| 15.6.2 | CPL performance constraints | 408 |
| 15.6.3 | CPL basic system concept | 408 |
| 15.7 | Components | 411 |
| 15.7.1 | Pumping systems | 411 |
| 15.7.2 | Mounting plates | 414 |
| 15.7.3 | Vapour quality sensors | 416 |
| 15.7.4 | Fluid disconnects | 420 |
| 16 | Control technology | 422 |
| 16.1 | Basic definitions | 422 |
| 16.2 | General description of control systems | 423 |
| 16.2.1 | Introduction | 423 |
| 16.2.2 | Closed-loop control systems | 424 |
| 16.2.3 | Open-loop control system | 424 |
| 16.2.4 | Adaptative control systems | 425 |
| 16.2.5 | Learning control system | 426 |
| 16.2.6 | Trade-off of open- and closed-loop control systems | 426 |
| 16.3 | Basic control actions | 431 |
| 16.3.1 | Introduction | 431 |
| 16.3.2 | Two-position or on-off control action | 432 |
| 16.3.3 | Proportional control action (p controller) | 433 |
| 16.3.4 | Integral control action (i controller) | 434 |
| 16.3.5 | Proportional-integral control action (pi controller) | 435 |
| 16.3.6 | Proportional-derivative control action (pd controller) | 436 |
| 16.3.7 | Proportional-integral-derivative control action (pid controller) | 437 |
| 16.3.8 | Summary | 438 |
| 16.4 | Implementation techniques of control laws | 439 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | | |
|---------------------------|---|------------|
| 16.4.1 | Introduction | 439 |
| 16.4.2 | Devices characterization | 441 |
| 16.4.3 | Analog-controller implementation techniques | 445 |
| 16.4.4 | Summary | 456 |
| 16.5 | Hardware description | 458 |
| 16.5.1 | Introduction | 458 |
| 16.5.2 | Controllers | 460 |
| 16.5.3 | Sensors | 465 |
| 16.5.4 | Actuators. Control valves | 468 |
| 16.6 | Control software | 469 |
| 16.7 | Existing systems | 472 |
| 16.7.1 | Space radiator system | 472 |
| Bibliography | | 476 |

Figures

| | | |
|-------------|---|----|
| Figure 5-1: | Schematic representation of the fluid loop | 52 |
| Figure 6-1: | Nusselt numbers, Nu , for fully developed laminar flow through straight pipes of several cross-sectional shapes. Nu_q is the Nusselt number for constant heat transfer rate along the duct, and Nu_T that for constant wall temperature along the duct. From Kays & London (1964) [102]. | 69 |
| Figure 6-2: | Nusselt numbers, Nu , vs. ratio, a/b , of short side to long side for fully developed laminar flow through straight pipes of rectangular cross section. From Kays & London (1964) [102]. | 70 |
| Figure 6-3: | Nusselt numbers, Nu , vs. ratio of inner to outer diameter, r_1/r_2 , for fully developed laminar flow in concentric- circular-tube annuli. Constant heat transfer rate. From Kays & London (1964) [102]. | 70 |
| Figure 6-4: | Influence of coefficients, Z , vs. ratio of inner to outer diameter, r_1/r_2 , for fully developed laminar flow in concentric-circular-tube annuli. Constant heat transfer rate. From Kays & London (1964) [102]. | 71 |
| Figure 6-5: | Nusselt number, Nu , vs. Dean number, K , for fully developed laminar flow in curved pipe of circular cross section. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Mori & Nakayama (1965) [128]. | 71 |
| Figure 6-6: | Thermal entry length Nusselt numbers, Nu , vs. non-dimensional axial distance, x^+ , for laminar flow through straight pipes. Constant wall temperature. Calculated by the compiler after Kays (1966) [101]. | 72 |
| Figure 6-7: | Thermal entry length Nusselt number, Nu_x , vs. non-dimensional axial distance, x^+ , for laminar flow through straight pipes. Constant heat transfer rate. Also shown the influence coefficient, Z , for laminar flow between parallel plates with one side insulated. Calculated by the compiler after Kays (1966) [101]. | 72 |
| Figure 6-8: | Thermal entry length Nusselt numbers, Nu_x , and influence coefficients, Z , vs. dimensionless axial distance, x^+ , for laminar flow in concentric-circular- | |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|----|
| tube annuli. Constant heat transfer rate. Calculated by the compiler after Kays (1966) [101]. | 73 |
| Figure 6-9: Thermal entry length Nusselt number, Nu_x , vs. non dimensional distance along the coil centerline, x^+ , for laminar flow through a coil. The results are given for two values of the ratio, r/R , between the cross-sectional radius and the coil radius. Constant wall temperature. Calculated by the compiler after Kubair & Kuloor (1966) [111]. | 73 |
| Figure 6-10: Nusselt numbers, Nu , vs. non-dimensional axial distance, x^+ , for the combined hydrodynamical and thermal entry length. Laminar flow through straight pipes of circular cross section. Constant wall temperature. $Pr = 0.7$. Replotted by the compiler after ESDU 68006 (1968) [48]. | 74 |
| Figure 6-11: Local Nusselt number, Nu_x , vs. non-dimensional axial distance, x^+ , for the combined hydrodynamical and thermal entry length. Laminar flow through straight pipes of circular cross section. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Heaton et al. (1964) [82]. | 74 |
| Figure 6-12: Local Nusselt number, Nu_x , and influence coefficient, Z , vs. dimensionless axial distance, x^+ , for the combined hydrodynamical and thermal entry length. Laminar flow between parallel plates, one of them insulated. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Heaton et al. (1964) [82]. | 75 |
| Figure 6-13: Local Nusselt number, Nu_x , vs. Reynolds number, Re , for fully developed transitional flow through cylindrical ducts of circular cross section. Constant wall temperature. Gas Flow ($Pr \approx 0.7$). From ESDU 68006 (1968) [48]. | 75 |
| Figure 6-14: Nusselt number, Nu , vs. Reynolds number, Re , for fully developed turbulent flow through cylindrical ducts. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Petukhov & Roizen (1975) [143]. | 76 |
| Figure 6-15: Ratio of Nusselt number at constant heat transfer rate, Nu_q , to Nusselt number at uniform wall temperature, Nu_T , vs. Reynolds number, Re , for fully developed turbulent flow through a straight pipe of circular cross section. Results are shown for different Prandtl numbers, Pr . From Sleicher & Tribus (1957) [167]. | 76 |
| Figure 6-16: Nusselt number, Nu , vs. Reynolds number, Re , for fully developed turbulent flow between parallel plates, one of them insulated. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Kays (1966) [101]. | 77 |
| Figure 6-17: Influence coefficient, Z , vs. Reynolds number, Re , for fully developed turbulent flow between parallel plates. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Kays (1966) [101]. | 77 |
| Figure 6-18: Nusselt number, Nu_{11} , and influence coefficient, Z_1 , vs. Reynolds number, Re , for fully developed turbulent flow in concentric-circular-tube annuli. $r_1/r_2 = 0,2$. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Kays (1966) [101]. | 78 |
| Figure 6-19: Nusselt number, Nu_{22} , and influence coefficient, Z_2 , vs. Reynolds number, Re , for fully developed turbulent flow in concentric-circular-tube annuli. $r_1/r_2 = 0,2$. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Kays (1966) [101]. | 78 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|----|
| Figure 6-20: Nusselt number, Nu_{11} , and influence coefficient, Z_1 , vs. Reynolds number, Re , for fully developed turbulent flow in concentric-circular-tube annuli. $r_1/r_2 = 0,5$. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Kays (1966) [101]. | 79 |
| Figure 6-21: Nusselt number, Nu_{22} , and influence coefficient, Z_2 , vs. Reynolds number, Re , for fully developed turbulent flow in concentric-circular-tube annuli. $r_1/r_2 = 0,5$. Constant heat transfer rate. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Kays (1966) [101]. | 79 |
| Figure 6-22: Nusselt number times Prandtl number to the minus 0.4 power, $NuPr^{0.4}$, vs. Reynolds number, Re , for fully developed turbulent flow in helically coiled tubes. The results are given for two values of the ratio, r/R , between the cross-sectional radius and the coil radius. Constant heat transfer rate. Calculated by the compiler after an experimental correlation obtained by Seban & McLaughlin (1963) [162] from data for water. | 80 |
| Figure 6-23: Thermal entry length Nusselt numbers, Nu , vs. non-dimensional axial distance, x/D , for fully developed turbulent flow through a straight pipe of circular cross section. Constant wall temperature. $Pr = 0.01$. Results are shown for different Reynolds numbers, Re . Calculated by the compiler after Kays (1966) [101]. | 80 |
| Figure 6-24: Thermal entry length Nusselt numbers, Nu , vs. non-dimensional axial distance, x/D , for fully developed turbulent flow through a straight pipe of circular cross section. Constant wall temperature. $Pr = 0.7$. Results are shown for different Reynolds numbers, Re . Calculated by the compiler after Kays (1966) [101]. | 81 |
| Figure 6-25: Ratio of thermal entry length Nusselt number, Nu_x , to Nusselt number for fully developed turbulent flow, Nu , vs. non-dimensional axial distance, x/D . Straight pipe of circular cross section. Constant heat transfer rate. $Pr = 0.01$. Results are shown for different Reynolds numbers, Re . Calculated by the compiler after Kays (1966) [101]. | 81 |
| Figure 6-26: Ratio of thermal entry length Nusselt number, Nu_x , to Nusselt number for fully developed turbulent flow, Nu , vs. non-dimensional axial distance, x/D . Straight pipe of circular cross section. Constant heat transfer rate. $Re = 10^5$. Results are shown for different Prandtl numbers, Pr . Calculated by the compiler after Kays (1966) [101]. | 82 |
| Figure 6-27: Ratio of thermal entry length Nusselt number, Nu_x , to Nusselt number for fully developed turbulent flow, Nu , vs. non-dimensional axial distance, x/D_E . Parallel plates at distance $2D_E$, one of them insulated. Constant heat transfer rate. Also shown the influence coefficient, Z . Results are shown for three different Prandtl numbers, Pr , and two Reynolds numbers, Re . Calculated by the compiler after Kays (1966) [101]. | 82 |
| Figure 6-28: Nusselt number, Nu , vs. Reynolds number, Re . Flow of a fluid having constant physical properties over a constant temperature circular cylinder whose axis is normal to the incoming flow. From ESDU 69004 (1969) [50]. | 84 |
| Figure 6-29: Effect of variable fluid properties, (a) and (b), and of inclination angle, (c), on the Nusselt number corresponding to the flow of a fluid over a constant temperature cylinder. Nu_b (Nu_{90°) can be deduced from Figure 6-28. From ESDU 69004 (1969) [50]. | 85 |
| Figure 6-30: Guide for the selection of the curves given in Figure 6-31 and Figure 6-32 concerning in-line tube banks of different relative pitches. From ESDU 73031 (1973) [57]. | 86 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|---|-----|
| Figure 6-31: Reference Nusselt number, Nu_r , for $Pr_b = 1$, as a function of Reynolds number, Re . In-line tube banks. See Figure 6-30 for the meaning of the numbers which appear on the curves. From ESDU 73031 (1973) [57]. | 87 |
| Figure 6-32: Reference Nusselt number, Nu_r , for $Pr_b = 1$, as a function of Reynolds number, Re . In-line tube banks. See Figure 6-30 for the meaning of the numbers which appear on the curves. From ESDU 73031 (1973) [57]. | 88 |
| Figure 6-33: Reference Nusselt number, Nu_r , for $Pr_b = 1$, as a function of Reynolds number, Re . In-line tube banks. Staggered tube banks. From ESDU 73031 (1973) [57]. | 89 |
| Figure 6-34: Effect of the Prandtl number, Pr_b , on the reference Nusselt number, Nu_r , for both in-line and staggered tube banks. From ESDU 73031 (1973) [57]. | 89 |
| Figure 6-35: The factor F_1 to account for variable fluid properties. From ESDU 73031 (1973) [57]. | 90 |
| Figure 6-36: The factor F_2 accounting for abnormal number of rows vs. that number, N . From ESDU 73031 (1973) [57]. | 90 |
| Figure 6-37: The factor F_3 accounting for the effect of yaw vs. the inclination angle, θ . From ESDU 73031 (1973) [57]. | 90 |
| Figure 6-38: The factor F_4 for estimating the Nusselt number of the n -th row. From ESDU 73031 (1973) [57]. | 91 |
| Figure 7-1: Friction characteristics associated with four types of roughness geometry. Notice that the equivalent roughness is different in every case. From Reynolds (1974). | 96 |
| Figure 7-2: Friction factor, λ_c , as a function of Reynolds number, Re , for different values of the relative roughness, e/D : Cylindrical tubes of circular cross section. From Idel'cik (1969) [97]. | 105 |
| Figure 7-3: Correction factor, K , to be used when the cross section of the duct is not circular. Laminar flow. $K = 1$ for turbulent flow through hydraulically smooth ducts. From ESDU 66027 (1966) [46]. | 105 |
| Figure 7-4: Boundary between short and long circular arc bends. From ESDU 67040 (1967) [47]. | 106 |
| Figure 7-5: Boundaries between laminar, transitional and turbulent flows in long circular arc bends. From ESDU 67040 (1967) [47]. | 106 |
| Figure 7-6: Pressure loss coefficient per unit bend angle, c_K/θ , as a function of the dimensionless radius of curvature of bend centerline, R/D , for different values of Reynolds number, Re . Either circular or square cross section. From ESDU 67040 (1967) [47]. | 107 |
| Figure 7-7: Pressure loss coefficient, c_K , as a function of the dimensionless radius of bend centerline, R/D , for different values of Reynolds number, Re . Laminar flow through short circular arc bends. From ESDU 67040 (1967) [47]. | 108 |
| Figure 7-8: Pressure loss coefficient, c_K , as a function of the dimensionless radius of bend centerline, R/D , for different values of bend angle, θ . Turbulent flow through short circular arc bends. Either circular or square cross section. From ESDU 67040 (1967) [47]. | 109 |
| Figure 7-9: Pressure loss coefficient, c_K , for short circular arc bends, having a short downstream tangent of length, L_d , as a function of L_d/D , for different values of the dimensionless radius of bend centerline, R/D . Turbulent flow. Either circular or square cross section. From ESDU 67040 (1967) [47]. | 110 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Figure 7-10: The factor α_1 to account for the aspect-ratio of the bend cross section. From ESDU 67040 (1967) [47]. | 110 |
| Figure 7-11: The factor α_2 to account for the bend angle. From ESDU 67040 (1967) [47]. | 111 |
| Figure 7-12: Pressure loss coefficient, c_K , for single mitre bends, as a function of bend angle, θ , for different values of the dimensionless length, L_d/D , of the downstream tube. Turbulent flow. Either circular or square cross section. From ESDU 67040 (1967) [47]. | 111 |
| Figure 7-13: Factor β , which account for the interaction between two 90° -circular arc bends-, as a function of the dimensionless distance between both bends, L_d/D . From ESDU 68035 (1968) [49]. | 112 |
| Figure 7-14: Factor β , which account for the interaction between two mitre bends, as a function of the dimensionless distance between both bends, L_d/D . From ESDU 68035 (1968) [49]. | 113 |
| Figure 7-15: Total-pressure loss coefficient, c_{Kt} , as a function of Reynolds number, Re_{D1} , for different values of the area ratio, ψ . Enlargement with a duct downstream $4D_2$ long. Uniform incoming flow at low Reynolds number. From ESDU 72011 (1972) [54]. | 113 |
| Figure 7-16: Different velocity profiles upstream of a sudden enlargement. From ESDU 72011 (1972) [54]. | 114 |
| Figure 7-17: Total-pressure loss coefficient, c_{Kt} , as a function of area ratio, ψ . Enlargement with a duct downstream $4D_2$ long. Numbers on curves indicate the velocity profile in Figure 7-22 for which the curve applies. From ESDU 72011 (1972) [54]. | 114 |
| Figure 7-18: Static-pressure loss coefficient, $-c_{Ks}$, as a function of area ratio, ψ . Enlargement with a duct downstream $4D_2$ long. Numbers on curves indicate the velocity profile in Figure 7-22 for which the curve applies. From ESDU (1972) [54]. | 115 |
| Figure 7-19: Total-pressure loss coefficient, c_{Kt} , as a function of Reynolds number, Re_{D2} , for different values of the area ratio, ψ . The pressure loss coefficient is expressed in terms of the dynamic pressure at clause 6. From Idel'cik (1969) [97]. | 115 |
| Figure 7-20: Reference values of the pressure loss coefficient, c_K , as a function of the ratio, ϕ , of the area available for fluid flow to the total area of the duct cross section. Perforated plates and orifices. From ESDU 72010 (1972) [53]. | 116 |
| Figure 7-21: The factor α_3 to account for the effect of plate thickness when $t/d < 0,8$. c_{K0} is given in Figure 7-19. From ESDU 72010 (1972) [53]. | 117 |
| Figure 7-22: The factor α_4 to account for the effect of plate thickness when $t/d \geq 0,8$. $c_{K0,8}$ is given in Figure 7-19. From ESDU 72010 (1972) [53]. | 118 |
| Figure 7-23: Comparison between the pressure loss coefficients, c_K , in the intermediate region calculated by assuming either of the two extreme cases, fully- separated or reattached orifice flow. From ESDU 72010 (1972) [53]. | 119 |
| Figure 7-24: Reference pressure loss coefficient, c_{Kr} , as a function of porosity, ϕ . Round-wire gauzes. From ESDU 72009 (1972) [52]. | 119 |
| Figure 7-25: Factor α_5 to account for low Reynolds number effects in round-wire gauzes. Reynolds number based on the wire diameter. From ESDU 72009 (1972) [52]. | 120 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Figure 7-26: Reference pressure loss coefficient, c_{Kr} , as a function of Reynolds number, Re , for diaphragm and butterfly valves fully open. Prepared by the compiler after ESDU 69022 (1969) [51]. | 120 |
| Figure 7-27: Factor α_6 , which accounts for the partial opening of the valve, as a function of the degree of valve opening, δ . δ is defined as the ratio of valve control travel from closed position to total valve control travel. From ESDU 69022 (1969) [51]. | 121 |
| Figure 7-28: Graphics for estimating the pressure loss coefficient, c_K , for in-line tube banks of several relative pitches, s_l , s_t , and yaw angles, θ . The influence of the heat exchange on the pressure loss is taken into account through the tube bank inlet and exit temperatures, T_i and T_o , respectively. From Idel'cik [97]. | 122 |
| Figure 7-29: Graphics for estimating the pressure loss coefficient, c_K , for staggered tube banks of several relative pitches, s_l , s_t , and yaw angles, θ . The influence of the heat exchange on the pressure loss is taken into account through the tube bank inlet and exit temperatures, T_i and T_o , respectively. From Idel'cik (1969) [97]. | 123 |
| Figure 7-30: Pressure loss coefficient, c_K , as a function of the ratio of lateral to total mass flow rates in branching tubes. The mixed confluence-branching case is not considered. From Idel'cik (1969) [97]. | 124 |
| Figure 8-1: The ratio $2St/f$, for turbulent flow in constant wall temperature cylindrical tubes, as calculated by use of several expressions, vs. the Reynolds number, Re . E: Correlation of experimental results. From Goldstein (1950) [73]. R: Reynolds Analogy. P: Prandtl Analogy. K: von Kármán Analogy. Calculated by the compiler. | 127 |
| Figure 9-1: Constant power heat transfer ratio, $(h_a-h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . From Bergles (1969) [8]. | 136 |
| Figure 9-2: Roughness function $u_e^+(e^+)$ for Nikuradse's sand roughness. (1) Hydraulically smooth. (2) $u_e^+ = 8,48$, completely rough. From Schlichting (1960) [157]. | 139 |
| Figure 9-3: Constant power heat transfer ratio, $(h_a-h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . Curves A to D are from Bergles (1969) [8], curves E and F have been calculated by the compiler after Webb, Eckert & Goldstein (1971) [186]. | 139 |
| Figure 9-4: Roughness function $u_e^+(e^+, b/e)$ for repeated-rib roughness. From Webb et al. (1971) [186]. | 142 |
| Figure 9-5: Flow pattern near the wall for different values of b/e . | 142 |
| Figure 9-6: Constant power heat transfer ratio, $(h_a-h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . Curves A, B, C are from Bergles (1969) [8], curves D to G have been calculated by the compiler after Sheriff & Gumley (1966) [166]. | 143 |
| Figure 9-7: Roughness function, $u_e^+(e^+, b/e)$, for wire coil roughness. Plotted by the compiler after Sheriff & Gumley (1966) [166]. | 146 |
| Figure 9-8: Velocity and Temperature distributions across the annulus. | 147 |
| Figure 9-9: Constant power heat transfer ratio, $(h_a/h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . From Carnavos (1974) [19]. | 149 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|---|-----|
| Figure 9-10: Constant power heat transfer ratio, $(h_a/h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . From Carnavos (1974) [19]..... | 151 |
| Figure 9-11: Constant power heat transfer ratio, $(h_a/h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . From Carnavos (1974) [19]..... | 153 |
| Figure 9-12: Constant power heat transfer ratio, $(h_a/h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . From Bergles (1969) [8]..... | 156 |
| Figure 9-13: Constant power heat transfer ratio, $(h_a/h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . Calculated by the compiler after Hong & Bergles (1976) [91]..... | 157 |
| Figure 9-14: Constant power heat transfer ratio, $(h_a/h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . Curves A to I are from Bergles (1969) [8], curves J to M have been calculated by the compiler after Thorsen & Landis (1968) [178]. | 160 |
| Figure 9-15: Isothermal Nusselt number, Nu_{ab} , divided by the ratio of friction factors, Γ , vs. the Reynolds number, Re_T , for different values of the Prandtl number, Pr . Calculated by the compiler after Thorsen & Landis (1968) [178]. | 163 |
| Figure 9-16: Constant power heat transfer ratio, $(h_a/h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . From Bergles (1969) [8]..... | 164 |
| Figure 9-17: Constant power heat transfer ratio, $(h_a/h_o)_P$, vs. Reynolds number based on non-augmentative conditions, Re_o . Curves A, B, C from Bergles (1969) [8], curves D, E, F from Bergles, Lee & Mikic (1969) [9]. | 167 |
| Figure 10-1: Product of cooling effectiveness, F , of several fluids times the equivalent length of the loop, L_E , as functions of the difference between the heat source and the inlet temperature, $T_S - T_i$, for the following reference values: Inner diameter of the duct, $D = 10^{-2}$ m. Diabatic length of the duct, $L = 1$ m. Heat flux, $q = 250$ W.m ⁻² for Air, Carbon Dioxide, Carbon Tetrachloride, Hydrogen and Nitrogen, $q = 1000$ W.m ⁻² for Ethylene Glycol, Flutec PP50 and Water. Calculated by the compiler. | 171 |
| Figure 10-2: Schematic representation of the fluid loop considered for estimating the fluid cooling effectiveness. | 172 |
| Figure 10-3: Graphical method allowing for values of heat flux, q , and inner diameter of the duct, D , different from those used in Figure 10-1..... | 174 |
| Figure 10-4: Graphic for estimating the product of the fluid cooling effectiveness, F , times the equivalent length of the loop, L_E , as a function of the difference between the heat source and the inlet fluid temperature, $T_S - T_i$. Fluid: Air. Reference values: $D = 10^{-2}$ m, $L = 1$ m, $q = 250$ W.m ⁻² . Values FL_E for different D and q , yet $L = 1$, can be calculated graphically as is indicated in the text. Prepared by the compiler..... | 175 |
| Figure 10-5: Graphic for estimating the product of the fluid cooling effectiveness, F , times the equivalent length of the loop, L_E , as a function of the difference between the heat source and the inlet fluid temperature, $T_S - T_i$. Fluid: Ethylene Glycol. Reference values: $D = 10^{-2}$ m, $L = 1$ m, $q = 1000$ W.m ⁻² . Values FL_E for different D and q , yet $L = 1$, can be calculated graphically as is indicated in the text. Prepared by the compiler. | 176 |
| Figure 10-6: Graphic for estimating the product of the fluid cooling effectiveness, F , times the equivalent length of the loop, L_E , as a function of the difference between the heat source and the inlet fluid temperature, $T_S - T_i$. Fluid: Flutec PP50. Reference values: $D = 10^{-2}$ m, $L = 1$ m, $q = 1000$ W.m ⁻² . | |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Values FL_E for different D and q , yet $L = 1$, can be calculated graphically as is indicated in the text. Prepared by the compiler. | 177 |
| Figure 10-7: Graphic for estimating the product of the fluid cooling effectiveness, F , times the equivalent length of the loop, L_E , as a function of the difference between the heat source and the inlet fluid temperature, $T_S - T_i$. Fluid: Water. Reference values: $D = 10^{-2}$ m, $L = 1$ m, $q = 1000$ W.m ⁻² . Values FL_E for different D and q , yet $L = 1$, can be calculated graphically as is indicated in the text. Prepared by the compiler. | 178 |
| Figure 10-8: Vapor pressure, p_{sat} , of Water vs. temperature, T . From Vargaftik (1975) [183]. | 186 |
| Figure 10-9: Density, ρ , of Water vs. temperature, T . From Vargaftik (1975) [183]. | 186 |
| Figure 10-10: Specific heat, c_p , of Water vs. temperature, T . From Vargaftik (1975) [183]. | 186 |
| Figure 10-11: Thermal conductivity, k , of Water vs. temperature, T . From Vargaftik (1975) [183]. | 187 |
| Figure 10-12: Dynamic viscosity, μ , of Water vs. temperature, T . From Vargaftik (1975) [183]. | 187 |
| Figure 10-13: Vapor pressure, p_{sat} , of Carbon Tetrachloride vs. temperature, T . From Vargaftik (1975) [183]. | 187 |
| Figure 10-14: Density, ρ , of Carbon Tetrachloride vs. temperature, T . From Vargaftik (1975) [183]. | 188 |
| Figure 10-15: Specific heat, c_p , of Carbon Tetrachloride vs. temperature, T . From Vargaftik (1975) [183]. | 188 |
| Figure 10-16: Thermal conductivity, k , of Carbon Tetrachloride vs. temperature, T . From Vargaftik (1975) [183]. | 188 |
| Figure 10-17: Dynamic viscosity, μ , of Carbon Tetrachloride vs. temperature, T . From Vargaftik (1975) [183]. | 189 |
| Figure 10-18: Vapor pressure, p_{sat} , of Coolanol 15, 25, 35 and 45 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 189 |
| Figure 10-19: Density, ρ , of Coolanol 15, 25, 35 and 45 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 189 |
| Figure 10-20: Specific heat, c_p , of Coolanol 15, 25, 35 and 45 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 190 |
| Figure 10-21: Thermal conductivity, k , of Coolanol 15, 25, 35 and 45 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 190 |
| Figure 10-22: Dynamic viscosity, μ , of Coolanol 15, 25, 35 and 45 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 190 |
| Figure 10-23: Kinematic viscosity, ν , of DC 200 vs. temperature T . Numbers on curves indicate the standard viscosity in cs. From DOW CORNING (1972) [38]. | 191 |
| Figure 10-24: Freezing point, T , of Water/Glycol Solutions vs. Glycol mass fraction, s . From Filippi & Guerra (1977) [64]. | 191 |
| Figure 10-25: Vapor pressure, p_{sat} , of Water/Glycol Solutions vs. temperature, T . Numbers on curves indicate Glycol mass fraction, c . From Filippi & Guerra (1977) [64]. | 192 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Figure 10-26: Density, ρ , of Water/Glycol Solutions vs. temperature, T . Numbers on curves indicate Glycol mass fraction, c . From Filippi & Guerra (1977) [64]. | 192 |
| Figure 10-27: Specific heat, c_p , of Water/Glycol Solutions vs. temperature, T . Numbers on curves indicate Glycol mass fraction, c . From Filippi & Guerra (1977) [64]. | 193 |
| Figure 10-28: Thermal conductivity, k , of Water/Glycol Solutions vs. temperature, T . Numbers on curves indicate Glycol mass fraction, c . From Filippi & Guerra (1977) [64]. | 193 |
| Figure 10-29: Dynamic viscosity, μ , of Water/Glycol Solutions vs. temperature, T . Numbers on curves indicate Glycol mass fraction, c . From Filippi & Guerra (1977) [64]. | 194 |
| Figure 10-30: Vapor pressure, p_{sat} , of Flutec PP-2, PP-9 and PP-50 vs. temperature, T . Data are from Dunn & Reay (1976) [40] except those corresponding to Flutec PP-50 which are from Wyn-Roberts (1974) [193]. | 194 |
| Figure 10-31: Density, ρ , of Flutec PP-2, PP-9 and PP-50 vs. temperature, T . Data are from Dunn & Reay (1976) [40] except those corresponding to Flutec PP-50 which are from Wyn-Roberts (1974) [193]. | 195 |
| Figure 10-32: Specific heat, c_p , of Flutec PP-50 vs. temperature, T . From Wyn-Roberts (1974) [193]. | 195 |
| Figure 10-33: Thermal conductivity, k , of Flutec PP-2, PP-9 and PP-50 vs. temperature, T . Data are from Dunn & Reay (1976) [40] except those corresponding to Flutec PP-50 which are from Wyn-Roberts (1974) [193]. | 196 |
| Figure 10-34: Dynamic viscosity, μ , of Flutec PP-2, PP-9 and PP-50 vs. temperature, T . Data are from Dunn & Reay (1976) [40] except those corresponding to Flutec PP-50 which are from Wyn-Roberts (1974) [193]. | 196 |
| Figure 10-35: Vapor pressure, p_{sat} , of Freon 11, 12, 13, 21, 22, 113, 114 and 142 vs. temperature, T . From Vargaftik (1975) [183]. | 197 |
| Figure 10-36: Density, ρ , of Freon 11, 12, 13, 21, 22, 113, 114 and 142 vs. temperature, T . From Vargaftik (1975) [183]. | 197 |
| Figure 10-37: Specific heat, c_p , of Freon 11, 12, 13, 21, 22, 113, 114 and 142 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 197 |
| Figure 10-38: Thermal conductivity, k , of Freon 11, 12, 13, 21, 22, 113, 114 and 142 vs. temperature, T . From Vargaftik (1975) [183]. | 198 |
| Figure 10-39: Dynamic viscosity, μ , of Freon 11, 12, 13, 21, 22, 113, 114 and 142 vs. temperature, T . Data are from Vargaftik (1975) [183] except those corresponding to Freon 13 which are from Filippi & Guerra (1977) [64]. | 198 |
| Figure 10-40: Vapor pressure, p_{sat} , of Freon E1, E2, E3, E4 and E5 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 198 |
| Figure 10-41: Density, ρ , of Freon E1, E2, E3, E4 and E5 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 199 |
| Figure 10-42: Specific heat, c_p , of Freon E1, E2, E3, E4 and E5 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 199 |
| Figure 10-43: Thermal conductivity, k , of Freon E1, E2, E3, E4 and E5 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 199 |
| Figure 10-44: Dynamic viscosity, μ , of Freon E1, E2, E3, E4 and E5 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 200 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|---|-----|
| Figure 10-45: Vapor pressure, p_{sat} , of FC 75 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 200 |
| Figure 10-46: Density, ρ , of FC 75 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 200 |
| Figure 10-47: Specific heat, c_p , of FC 75 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 201 |
| Figure 10-48: Thermal conductivity, k , of FC 75 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 201 |
| Figure 10-49: Dynamic viscosity, μ , of FC 75 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 201 |
| Figure 10-50: Thermal conductivity, k , of Methanol/Water Solutions vs. temperature, T . Numbers on curves indicate Methanol mass fraction, c . From Vargaftik (1975) [183]. | 202 |
| Figure 10-51: Dynamic viscosity, μ , of Methanol/Water Solutions vs. temperature, T . Numbers on curves indicate Methanol mass fraction, c . From Vargaftik (1975) [183]. | 202 |
| Figure 10-52: Vapor pressure, p_{sat} , of Monsanto OS 59 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 203 |
| Figure 10-53: Density, ρ , of Monsanto OS 59 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 203 |
| Figure 10-54: Specific heat, c_p , of Monsanto OS 59 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 203 |
| Figure 10-55: Thermal conductivity, k , of Monsanto OS 59 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 204 |
| Figure 10-56: Dynamic viscosity, μ , of Monsanto OS 59 vs. temperature, T . From Filippi & Guerra (1977) [64]. | 204 |
| Figure 10-57: Density, ρ , of Air at a pressure of 10^5 Pa vs. temperature, T . From Vargaftik (1975) [183]. | 212 |
| Figure 10-58: Specific heat, c_p , of Air vs. temperature, T . From Vargaftik (1975) [183]. | 212 |
| Figure 10-59: Thermal conductivity, k , of Air vs. temperature, T . From Vargaftik (1975) [183]. | 212 |
| Figure 10-60: Dynamic viscosity, μ , of Air vs. temperature, T . From Vargaftik (1975) [183]. | 213 |
| Figure 11-1: Typical regenerators. a) Rotary type. b) Valved type. From Kays & London (1964) [102]. | 214 |
| Figure 11-2: Typical recuperators. a) Counterflow heat exchanger. b) Crossflow heat exchanger. From Welty, Wicks & Wilson (1969) [188]. | 215 |
| Figure 11-3: Some typical examples of compact heat exchanger surfaces. From Kays & London (1964) [102]. a) Circular tube bundle. b) Finned-circular-tube surface. c) Finned-tube surface, flat tubes, continuous fins. d) Plate-fin arrangement. e) Strip-fin surface. f) Regenerator compact matrix. | 216 |
| Figure 11-4: a) Shell-and-tube exchanger with two shell passes and four tube passes. b) Schematic representation of the exchanger which will be used in clause 11.2.3. | 217 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Figure 11-5: Liquid-coupled indirect-transfer type of heat exchanger. From Kays & London (1964) [102]. | 217 |
| Figure 11-6: Thermal conductivity, k , of several metals vs. temperature, T . From Kays & London (1964) [102]. | 219 |
| Figure 11-7: Heat transfer effectiveness, η_f , of trapezoidal fins, vs. dimensionless fin length, $L[2h/k(\delta_t + \delta_b)]^{1/2}$. Calculated by the compiler after Jakob (1958) [99]. | 220 |
| Figure 11-8: Heat transfer effectiveness, η_f , of circular fins, vs. dimensionless fin length, $(r_o - r_i)(h/k\delta)^{1/2}$. Calculated by the compiler after Jakob (1958) [99]. | 220 |
| Figure 11-9: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , in a counterflow exchanger. From Kays & London (1964) [102]. | 222 |
| Figure 11-10: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , in a parallel flow exchanger. From Kays & London (1964) [102]. | 222 |
| Figure 11-11: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , in a crossflow exchanger with fluids unmixed. Calculated by the compiler after Mason (1954) [124]. | 223 |
| Figure 11-12: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , in a crossflow exchanger with one fluid mixed. From Kays & London (1964) [102]. | 223 |
| Figure 11-13: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , for the case of n-pass counter-crossflow exchangers, when fluid A is unmixed throughout and fluid B mixed throughout, and with passes connected in reverse order. Calculated by the compiler after Stevens, Fernandez & Woolf (1957) [170]. | 224 |
| Figure 11-14: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , for the case of n-pass counter-crossflow exchangers, when fluid A is unmixed throughout and fluid B mixed throughout, and with passes connected in identical order. Calculated by the compiler after Stevens, Fernandez & Woolf (1957) [170]. | 225 |
| Figure 11-15: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , in a multipass exchanger with 1 shell pass and 2 or more tube passes. From Kays & London (1964) [102]. | 226 |
| Figure 11-16: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , in a multipass exchanger with 2 shell passes and 4, 8, 12, ... tube passes. From Kays & London (1964) [102]. | 226 |
| Figure 11-17: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , in a multipass exchanger with 3 shell passes and 6, 12, 18, ... tube passes. From Kays & London (1964) [102]. | 227 |
| Figure 11-18: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , in a multipass exchanger with 4 shell passes and 8, 16, 24, ... tube passes. From Kays & London (1964) [102]. | 227 |
| Figure 11-19: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , in a multipass exchanger with 5 shell passes and 10, 15, 20, ... tube passes. From Kays & London (1964) [102]. | 228 |
| Figure 11-20: Heat transfer effectiveness, ε , vs. number of heat transfer units, N_{tu} , for different number of shell passes, in a multipass exchanger with $R = 1$. The case $R = 0$ is also shown for comparison. Calculated by the compiler after Kays & London (1964) [102]. | 228 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Figure 11-21: Optimum liquid flow capacity rate, C_1/C_{Lopt} , to maximize the heat transfer effectiveness vs. ratio of the number of heat transfer units N_{tu1}/N_{tu2} , of exchanger 1 to exchanger 2. Calculated by the compiler after Holmberg (1975) [90]. | 229 |
| Figure 11-22: Heat transfer effectiveness, ε , vs. liquid flow capacity rate, C_L/C_{Lopt} , for different values of the overall number of heat transfer units, N_{tu} . $N_{tu1}/N_{tu2} = 1$. Calculated by the compiler after Holmberg (1975) [90]. | 230 |
| Figure 11-23: Heat transfer effectiveness, ε , vs. liquid flow rate, C_L/C_{Lopt} , for different values of the ratio between the number of heat transfer units of exchanger 1 to exchanger 2, N_{tu1}/N_{tu2} . $N_{tu}^0 = 2$. Calculated by the compiler after Holmberg (1975) [90]. | 230 |
| Figure 11-24: Overall heat transfer effectiveness, ε , vs. area ratio between exchanger 1 and 2, $(A_1/A_2)/(A_1/A_2)_{opt}$, for the case of optimum liquid flow capacity rate and $R = 1$. Calculated by the compiler after Holmberg (1975) [90]. | 231 |
| Figure 11-25: Overall heat transfer effectiveness, ε_t , of an assembly of n identical exchangers in parallel, vs. effectiveness, ε , of a single exchanger. Calculated by the compiler after Domingos (1969) [36]. | 232 |
| Figure 11-26: Overall heat transfer effectiveness, ε_t , of an assembly of n identical exchangers in counterflow, vs. effectiveness, ε , of a single exchanger. Calculated by the compiler after Domingos (1969) [36]. | 233 |
| Figure 11-27: Overall heat transfer effectiveness, ε_t , of an assembly of n identical exchangers in parallel in the stream of lower capacity rate, vs. effectiveness, ε , of a single exchanger. Calculated by the compiler after Domingos (1969) [36]. | 233 |
| Figure 11-28: Overall heat transfer effectiveness, ε_t , of an assembly of n identical exchangers in parallel in the stream of higher capacity rate, vs. effectiveness, ε , of a single exchanger. Calculated by the compiler after Domingos (1969) [36]. | 234 |
| Figure 11-29: Heat exchanger ineffectiveness, $1-\varepsilon$, vs. number of heat transfer units, N_{tu} , for a counterflow heat exchanger. Results are shown for $R = 1$ and different values of the wall conduction parameter, Δ . From Kroeger (1967) [110]. | 251 |
| Figure 11-30: Heat exchanger ineffectiveness, $1-\varepsilon$, vs. number of heat transfer units, N_{tu} , for a counterflow heat exchanger. Results are shown for $R = 0,95$ and different values of the wall conduction parameter, Δ . From Kroeger (1967) [110]. | 251 |
| Figure 11-31: Heat exchanger ineffectiveness, $1-\varepsilon$, vs. number of heat transfer units, N_{tu} , for a counterflow heat exchanger. Results are shown for $R = 0,90$ and different values of the wall conduction parameter, Δ . From Kroeger (1967) [110]. | 252 |
| Figure 11-32: Heat exchanger ineffectiveness, $1-\varepsilon$, vs. dimensionless wall conduction, Δ , for a counterflow heat exchanger. Results are shown for $N_{tu} = 50$ and different values of the capacity-rate ratio, R . Calculated by the compiler after Kroeger (1967) [110]. | 252 |
| Figure 11-33: Relative capacity, $\Sigma Q_n/Q$, of a simple two fluid heat exchanger vs. the maldistribution parameter, ϕ , for several values of the nominal number of heat transfer units, N_{tu} . From Weimer & Hartzon (1973) [187]. | 255 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Figure 11-34: Relative surface requirements, $\Sigma A_n/A$, of a simple two fluid exchanger for fixed total duty vs. the maldistribution parameter, ϕ . Results are shown for several values of the nominal number of heat transfer units, N_{tu} . From Weimer & Hartzog (1973) [187]. | 255 |
| Figure 11-35: Flow distribution model for the non-uniform side. From Fleming (1967) [65]. | 256 |
| Figure 11-36: Overall effectiveness, ε , and effective number of heat transfer units, N_{tueff} , vs. the fraction, F_{Low} , of channels which carry lower-than-average flow on the nonuniform side of a "paired channels" heat exchanger. Results are shown for different values of the ratio of the capacity rate, C_{Low} , of a single channel with lower-than-average flow to the capacity rate, C_{High} , of a single channel with higher-than-average flow. (a) is for a nominal number of heat transfer units $N_{tu} = 10$ and (b) for $N_{tu} = 100$. From Fleming (1967) [65]. | 257 |
| Figure 11-37: Overall effectiveness, ε , vs. the fraction, F_{Low} , of channels which carry lower-than-average flow on the nonuniform side of a heat exchanger with uniform side mixed. Results are shown for different values of the nominal number of heat transfer units N_{tu} , and of the ratio C_{Low}/C_{High} . From Fleming (1967) [65]. | 257 |
| Figure 11-38: Ideal flow distribution in the shell side of shell-and-tube heat exchangers. ... | 258 |
| Figure 11-39: Schematic of the temperature distribution along the heat exchanger. (a) Balanced case. (b) Imbalanced case. From Cowans (1974) [28]. | 262 |
| Figure 11-40: Flow imbalance compensating technique for gas to gas heat exchangers. From Cowans (1974) [28]. | 263 |
| Figure 11-41: Plate spacing, (a), and fin spacing (b), type flow passage non-uniformities. From London (1970) [118]. | 264 |
| Figure 11-42: Degradation in the heat exchanger thermal performance, measured by $Cost_{Ntu}$, and relative gain in pressure loss, $1-(\Delta p_1/\Delta p_n)$, as functions of the deviation in channel size, $1-(D_{E1}/D_{En})$. Results in (a) apply to any cylindrical passage provided that the non-uniformities are geometrically similar. Results in (b) are for non-uniformities of the fin-spacing type. From London (1970) [118]. | 266 |
| Figure 11-43: Fin center of offset rectangular plat-fin surface. From Shah & London (1970) [164]. | 268 |
| Figure 11-44: Assumed core geometries. From Shah & London (1970) [164]. | 269 |
| Figure 11-45: Heat transfer, j , and friction, f , characteristics as functions of Reynolds number, Re , for surfaces 501 and 501 MOD. From Shah & London (1970) [164]. | 270 |
| Figure 11-46: Flow area goodness factor, j/f , as a function of Reynolds number, Re , for surfaces 501 and 501 MOD. From Shah & London (1970) [164]. | 271 |
| Figure 12-1: Typical characteristic curves of a centrifugal pump for a given rotating speed. | 287 |
| Figure 12-2: Rotodynamic pump impellers. From Nekrasov (1969) [132]. | 289 |
| Figure 12-3: Characteristic curves of SEALED MOTOR CONSTRUCTION Centrifugal Pumps Cadet "Mini" and Cadet "S" pumping water. From Wyn-Roberts (1973) [194]. | 294 |
| Figure 12-4: Characteristic curves of EURAMO Centrifugal Pumps Cadet MX 32-E and XA 15-R pumping water. From EURAMO-POMPES SALMSON (1977) [60]. | 294 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Figure 12-5: Characteristic curve of the Centrifugal Pump devised by Engel & Walter Cadet "Mini" and Cadet "S" pumping water. From Wyn-Roberts (1973) [194]. | 295 |
| Figure 12-6: Characteristic curves of Eastern-Iwaki Centrifugal Pumps MD-15T and MDR-30T pumping water. From GELBER (1976) [71]. | 295 |
| Figure 12-7: Characteristic curve of Centrifugal Pump AC-3C-MD pumping water. From GELBER (1976) [71]. | 296 |
| Figure 12-8: Characteristic curve of Positive Displacement Rotary Pump 413-7-1285 pumping water. From GELBER (1976) [71]. | 296 |
| Figure 13-1: Schematic representation of the fluid loop considered by Barker, Stephens & Taylor (1967) [3]. | 299 |
| Figure 13-2: Results of the liquid coolant system optimization analysis. a) gives the mass penalty, M^* , of the system components vs. Freon 21 mass flow rate, m_c . The mass penalty includes the equivalent mass due to pumping power. b) gives the system mass, M , vs. Freon 21 mass flow rate, m_c . From Baker, Stephens & Taylor (1967) [3]. | 301 |
| Figure 13-3: Schematic representation of the fluid loop with EDHX. From Berner & Schleicher (1976) [13]. | 302 |
| Figure 13-4: Mass penalty, M^* , of the supply and return plumbing system vs. source temperature, T_s . M^* includes mass of tubes and fluid plus the equivalent mass due to pumping. Heat load, $Q = 10^3$ W. From Berner & Schleicher (1976) [13]. | 304 |
| Figure 13-5: Source temperature, T_s , vs. coolant mass flow rate, m_h , for different values of the heat transfer rate, Q . The interrupted lines are drawn through the points for which the power requirements, for a given D_i , equals 1 W. From Berner & Schleicher (1976) [13]. | 305 |
| Figure 13-6: Schematic representation of basic ECLA system. The aim of the accumulator, which is not mentioned in the text, is to accommodate changes in coolant density with temperature. The coolant throttle is used for adjusting the coolant mass flow rate, m_h . From Berner & Schleicher (1976) [13]. | 306 |
| Figure 14-1: Flow-pattern map for vertical upward air-water flow. Prepared by the compiler after Hewitt (1982) [86]. m_G and m_L are the gas and liquid mass flow rates, respectively. A_{FL} is the internal cross-sectional area of the duct. | 309 |
| Figure 14-2: Baker flow-pattern map for horizontal air-water flow. From Hewitt (1982) [86]. m_G and m_L are the gas and liquid mass flow rates, respectively. A_{FL} is the internal cross-sectional area of the duct. | 310 |
| Figure 14-3: Lockhart - Martinelli correlation for pressure loss multipliers. The figure has been drawn by use of Chisholm analytical representation. See text..... | 313 |
| Figure 14-4: Gas phase pressure loss multiplier, Φ_G , vs. Lockhart - Martinelli parameter, X , as deduced from Eqs. [14-9] and [14-10] and from experimental data. a) tt case; b) vt case; c) vv case. Experimental points are from Wallis (1969) [184]. | 315 |
| Figure 14-5: Liquid fraction, $1-\alpha$, vs. Lockhart - Martinelli parameters, X . From Wallis (1969) [184]. | 316 |
| Figure 14-6: Comparison of Lockhart - Martinelli with available experimental data. Points with C as per Eq. [14-13], with $\rho_G/\rho_L = 0$ are also shown. From Yang & Palen (1977) [195]. | 317 |

| | |
|--|-----|
| Figure 14-7: The annular flow configuration..... | 318 |
| Figure 14-8: Liquid film friction factor, f_L , as a function of liquid film Reynolds number, Re_L , for annular two-phase flow in cylindrical ducts of circular cross-section. From Hewitt (1982) [86]. The full lines correspond, respectively, to Hagen-Poiseuille formula and to Blasius formula. f_L is equal to the friction factor f_{sL} which corresponds to the single phase flow along the duct at the same Reynolds number except for an intermediate Re_L | 321 |
| Figure 14-9: Pressure gradient multipliers, Φ_L and Φ_G , dimensionless film thickness, δ/D , and liquid fraction, $1-\alpha$, according to Eqs. [14-34], [14-35] and [14-36], with $\rho_L/\rho_G = 1000$. Calculated by the compiler. | 323 |
| Figure 14-10: Comparison of the liquid fraction, $1-\alpha$, vs. Lockhart - Martinelli parameter, X , as deduced from Eqs. [14-34] and [14-35], with $\rho_L/\rho_G = 1000$, with experimental data from Wallis (1969) [184]. | 324 |
| Figure 14-11: Comparison of the gas pressure gradient multiplier, $\Phi_G = x\Phi_L$, vs. Lockhart - Martinelli parameter, X , as deduced from Eqs. [14-34] and [14-36], with $\rho_L/\rho_G = 1000$, with experimental data from Wallis (1969) [184]. tt case. | 324 |
| Figure 14-12: The function $F(\delta/D)$ which appears in Eq. [14-62]. The effect of the liquid-gas density ratio is negligible for the range of values given in the figure. Compare the values given in this curve with those given by $2\delta/D$ vs. X in Figure 14-9..... | 331 |
| Figure 14-13: Martinelli parameter, X , vs. entrainment parameter, R_E , as deduced from air-water flow experiments. From Wicks & Duckler (1960) [190]. Note that R_E is not dimensionless. | 332 |
| Figure 14-14: Concentration of entrained droplets in the gas core, $\phi_G m_E/m_G$, vs. dimensionless number $\tau_i^* \delta/\sigma$. Replotted by the compiler after Hutchinson & Whalley (1973) [93]. Different symbols are used to indicate experiments by different authors. | 333 |
| Figure 14-15: Flow geometry when gravity is dominant (a) or negligible (b). The void fraction (vapor fractional area in the figure) is the same in both cases. | 341 |
| Figure 14-16: Geometry used in the model of stratified flow condensation. | 342 |
| Figure 14-17: Liquid fraction, $1-\alpha$, vs. vapor quality, w . For stratified condensing flow of several liquid along horizontal ducts. Calculated by the compiler. | 348 |
| Figure 14-18: Vapor quality, w , vs. dimensionless distance along the duct, x/D , for stratified condensing flow for several liquids along horizontal ducts. Calculated by the compiler. | 349 |
| Figure 14-19: The Taitel and Dukler limit for stratified flow in the w vs. $(1-\alpha)$ plane. Numbers on the curves represent constant values of the parameter $w^2(1-w)/\alpha^2(1-\alpha)$ which appears in the left hand side of Eq. [14-114]. | 350 |
| Figure 14-20: Liquid-alone Nusselt number, Nu_{sL} , vs. liquid Reynolds number, Re_L , as given by different correlations in typical cases. Calculated by the compiler. | 354 |
| Figure 14-21: Liquid fraction, $1-\alpha$, as a function of vapor quality, w , for annular flow of several liquid along ducts. Calculated by the compiler..... | 355 |
| Figure 14-22: Vapor quality, w , as a function of dimensionless distance along the duct, x/D , for annular flow of several liquids along ducts. Calculated by the compiler. | 356 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|---|-----|
| Figure 15-1: Schematic of ATCS fluid loop in the Module-Pallet mode. From Owen, Sessions & Walker (1976) [139]. | 358 |
| Figure 15-2: Schematic of three different types of two-phase flow loops. a) Parallel circuit. b) Series circuit. c) Series/parallel circuit. | 359 |
| Figure 15-3: Physical layout of 25 kW technology demonstrator (thermal bus). From Carlisle / Nolan (1987) [18]. | 360 |
| Figure 15-4: Space platform configuration. From Sadunas, Lehtinen & Parish (1985) [153]. | 361 |
| Figure 15-5: Study baseline centralized liquid loop external bus. From Sadunas, Lehtinen & Parish (1985) [153]. | 364 |
| Figure 15-6: Concept III. Decentralized liquid loop. From Sadunas, Lehtinen & Parish (1985) [153]. | 366 |
| Figure 15-7: Concept IV. Decentralized two-phase transport. From Sadunas, Lehtinen & Parish (1985) [153]. | 366 |
| Figure 15-8: Trade study mass summary. From Sadunas, Lehtinen & Parish (1985) [153]. | 370 |
| Figure 15-9: Decentralized systems with TS. a) Pumped liquid loop. b) Two-phase transport. From Lehtinen & Sadunas (1985) [114]. | 371 |
| Figure 15-10: Radiator absorbed environmental heat flux, q_e , vs. dimensionless time, t/t_p . Orbital period, $t_p = 90$ min. Radiator limit: Black body emissive power. From Lehtinen & Sadunas (1985) [114]. | 371 |
| Figure 15-11: Thermal performance of PC capacitors in different subsystems. a) Metabolic. b) Equipment. c) Fuel cell. Thermal performance is given in terms of: 1) energy storage rate, Q_c ; and 2) net stored energy, J_c . From Lehtinen & Sadunas (1985) [114]. | 374 |
| Figure 15-12: Required specific storage capacity. J_c/Q_c , of typical TMSs vs. temperature, T . From Lehtinen & Sadunas (1985) [114]. | 376 |
| Figure 15-13: Schematic of the fuel cell loop TMS. a) Pumped liquid loop. b) Two-phase transport. From Sadunas, Lehtinen & Parish (1986) [153]. | 377 |
| Figure 15-14: Respond-to-demand temperature control scheme From Sadunas, Lehtinen, Nguyen & Parish (1986) [154]. | 379 |
| Figure 15-15: Orbital-average temperature control scheme. From Sadunas, Lehtinen, Nguyen & Parish (1986) [154]. | 379 |
| Figure 15-16: Instrumentation of the different control schemes. a) "Respond-to-demand" pumped-liquid-loop scheme. b) "Orbital-average" pumped-liquid-loop scheme. c) Two-phase transport loop scheme. From Sadunas, Lehtinen, Nguyen & Parish (1986) [154]. | 381 |
| Figure 15-17: Evolution of the heat rejection rate and configuration of spacecraft thermal control systems. From Dexter & Haskin (1984) [34]. | 383 |
| Figure 15-18: Schematic of the heat pump working principle. Adapted by the compiler after Rye & Steen (1986) [152]. | 383 |
| Figure 15-19: Radiator mass, M_R , of four typical systems (see text above) for different values of the heat rejection rate, Q . Calculated by the compiler. | 385 |
| Figure 15-20: Mass breakdown of a heat pump augmented system for different values of the heat rejection rate, Q . $T_R = 300$ K. Calculated by the compiler. | 386 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|---|-----|
| Figure 15-21: Mass breakdown of a heat pump augmented system for different values of the heat rejection rate, Q . a) $T_R = 340$ K. b) $T_R = 380$ K. Calculated by the compiler. | 387 |
| Figure 15-22: Ratio of total mass, M , of the heat pump augmented system to the total mass, M_r , of the reference classical pumped-liquid loop vs. the inverse Carnot coefficient of performance $[T_R - T_c]/T_c$ for different values of the heat rejection rate, Q . Calculated by the compiler. | 388 |
| Figure 15-23: Effect of α_s/ε on radiator specific area, A_R/Q . From Lehtinen & Sadunas (1985). | 389 |
| Figure 15-24: Radiator specific area, A_R/Q , vs. refurbishment frequency, t . From Lehtinen & Sadunas (1985) [114]. | 390 |
| Figure 15-25: Steerable to fixed radiator specific heat-rejection ration, $(Q/A_R)_{steer}/(Q/A_R)$, vs. radiator temperature, T_R . From Sadunas, Lehtinen & Parish (1985) [154]. | 392 |
| Figure 15-26: Rotatable radial flow heat pipe. From Delil (1986a) [33]. | 396 |
| Figure 15-27: Thermal joint based on a radial flow heat pipe. From Hinderer & Savage (1978) [88]. | 396 |
| Figure 15-28: Heat transfer enhancement by flow oscillation demonstrator. From Kurzweg & Zhao (1984) [113]. | 397 |
| Figure 15-29: Hemispherical heat pipe junction. From Delil (1986a) [33]. | 397 |
| Figure 15-30: Cylindrical heat pipe junction. From Delil (1986a) [33]. | 397 |
| Figure 15-31: Heat pipe in heat pipe joint. This concept is an off-spring of the cylindrical heat pipe joint. From Shaubach (1985) [165]. | 398 |
| Figure 15-32: Flexible heat pipe consisting of a 0,15 m long rigid evaporator and a 0,20 m long rigid condenser. From Delil (1986a) [33]. | 398 |
| Figure 15-33: Flexible cooper/acetone heat pipe. It features a 0,381 m long adiabatic section between an evaporator and a condenser both 0,178 m long. Inside diameter is 0,016 m. From Delil (1986a) [33]. | 398 |
| Figure 15-34: Finned heat exchangers. Interstice either vacuum-filled or filled with a gas, a low melting point or a grease. From French (1985) [68]. | 398 |
| Figure 15-35: Grease-filled heat pipe-heat pipe joint. Hinge joint-coaxial with the internal heat pipe and parallel to the plane of the radiator heat pipe. From Delil (1986a) [33]. | 399 |
| Figure 15-36: Braided conductor flexible thermal joint. From Delil (1987a) [31]. | 399 |
| Figure 15-37: Clamped joint contact conductor. Heat pipe penetrates heat exchanger. Fluid pressure-enhanced thermal contact. From Ellis & Rankin (1983) [42]. | 400 |
| Figure 15-38: Self deployed membrane heat pipe radiator. Both deployed and undeployed configurations shown in the figure. From Delil (1986a) [33]. | 400 |
| Figure 15-39: Internal details of the rotatable fluid transfer coupling. Dimensions are in mm. From Heizer, Goo, Rhodes, Thoreson & Parish (1986) [83]. | 401 |
| Figure 15-40: Rotatable fluid transfer coupling. a) General view showing the liquid and vapour radial ports. b) Channel geometry. From Heizer, Goo, Rhodes, Thoreson & Parish (1986) [83]. | 401 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|---|-----|
| Figure 15-41: Pressure drop, Δp , along the duct at one position of the rotary coupling for different values of the heat rejection rate, Q . From Heizer, Goo, Rhodes, Thoreson & Parish (1986) [83]. | 402 |
| Figure 15-42: a) Schematic of a three-axis stabilized spacecraft in geosynchronous orbit. From Chalmers & Pustay (1986). b) Typical thermal load sharing of east-west faces. From Wise (1986) [192]. | 403 |
| Figure 15-43: East-west radiator coupling. a) Based on HP technology. From Chalmers & Pustay (1986). b) Based on CPL technology. From Chalmers, Pustay, Moy & Kroliczek (1986) [23]. | 404 |
| Figure 15-44: Schematic of CPL engineering model. In a) the liquid fills most of the loop, whereas in b) part of this liquid has been evaporated. From Chalmers, Pustay, Moy & Kroliczek (1986) [23]. | 405 |
| Figure 15-45: Schematic of a basic CPL system. From Chalmers, Pustay, Moy & Kroliczek (1986) [23]. | 409 |
| Figure 15-46: a) Standard CPL evaporator pump. From Chalmers et al. (1986) [23]. b) Heat flow in a cross section of a typical CPL evaporator. From Wise (1986) [192]. | 409 |
| Figure 15-47: Prototype capillary cold plate (PCCP) design. Dimension in mm. From Chalmers, Pustay, Moy & Kroliczek (1986) [23]. | 410 |
| Figure 15-48: CPL technology radiators. a) Direct condensation radiator. b) Heat exchanger-heat pipe radiator. From Chalmers, Pustay, Moy & Kroliczek (1985) [23]. | 410 |
| Figure 15-49: Monogroove heat pipe. From Alario, Haslett & Kosson (1981) [1]. | 412 |
| Figure 15-50: Osmotically pumped heat transfer system. From Tanzer, Fleischman & Stalmach (1982) [175]. | 413 |
| Figure 15-51: Biomorph (Biomorph) pump. From Peterson (1987) [142]. | 413 |
| Figure 15-52: Instrument-TMS interfaces. From Almgren et al. (1981) [2]. | 415 |
| Figure 15-53: Schematic of a grooved cold plate/hot plate in the cold plate mode. From Hwangbo & McEver (1985) [94]. | 415 |
| Figure 15-54: Two-Phase Mounting Plate (TPMP) development unit. The Lexan window has been incorporated to observe the flow during testing. All dimensions are in mm. From Grote & Swanson (1985) [77]. | 416 |
| Figure 15-55: Void fraction sensors of the capacitance type. a) Single coaxial capacitor. b) Concave plate capacitor. c) Double helix capacitor. d) Film thickness gage. From Delil (1986b) [30]. | 418 |
| Figure 15-56: Dimensionless capacitance as a function of void fraction, α . a) Annular flow, single coaxial capacitor. b) Annular flow, concave plate capacitor. From Delil (1986b) [30]. | 419 |
| Figure 15-57: Dimensionless capacitance as a function of dimensionless film thickness, δ/d . Flat wall, film thickness gage. From Delil (1986b) [30]. | 420 |
| Figure 15-58: Engagement sequence of the RSO disconnect. Disengagement is achieved through the reverse sequence. From MOOG [127]. | 421 |
| Figure 16-1: Closed-loop control system block diagram. | 424 |
| Figure 16-2: Open-loop control system block diagram. | 424 |
| Figure 16-3: Typical block diagram of adaptative control systems. | 425 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Figure 16-4: Feedback system | 426 |
| Figure 16-5: Sketch of the gain of a system as a function of frequency. | 427 |
| Figure 16-6: Feedback system with two feedback loops..... | 428 |
| Figure 16-7: Feedback system with a noise signal. | 429 |
| Figure 16-8: Feedback structure of instruments and regulators. From Ogata (1990) [137]..... | 431 |
| Figure 16-9: Block diagram of an industrial control system, which consists of an automatic controller, an actuator, a plant, and a sensor (measuring element). From Ogata (1990) [137]. | 432 |
| Figure 16-10: a) Block diagram of an on-off controller; b) block diagram of an on-off controller with differential gap; c) output versus time curve. From Ogata (1990) [137]. | 433 |
| Figure 16-11: Block diagram of a proportional controller. From Ogata (1990) [137]. | 434 |
| Figure 16-12: Block diagram of an integral controller. From Ogata (1990) [137]. | 435 |
| Figure 16-13: a) Block diagram of a proportional-integral controller; b) and c) diagrams depict a unit-step input and the controller output. From Ogata (1990) [137]. | 436 |
| Figure 16-14: a) Block diagram of a proportional-derivative controller; b) and c) diagrams depict a unit-ramp input and the controller output. From Ogata (1990) [137]. | 437 |
| Figure 16-15: a) Block diagram of a proportional-integral-derivative controller; b) and c) diagrams depict a unit-ramp and the controller output. From Ogata (1990) [137]. | 438 |
| Figure 16-16: Block diagram of a digital control system. From Ogata (1987) [135]. | 440 |
| Figure 16-17: Block diagram of a digital control system showing signals in binary or graphic form. From Ogata (1987) [135]. | 440 |
| Figure 16-18: Schematic diagram of a pressure system. From Ogata (1990) [137]. | 441 |
| Figure 16-19: Schematic diagram of a pneumatic actuating valve. From Ogata (1990) [137]. | 443 |
| Figure 16-20: a) Dashpot; b) step change in x and the corresponding change in y plotted versus t ; c) block diagram of the dashpot. From Ogata (1990) [137]. | 444 |
| Figure 16-21: a) Schematic diagram of a force-distance type pneumatic proportional controller; b) block diagram; c) simplified block diagram. From Ogata (1990) [137]. | 446 |
| Figure 16-22: Schematic diagram of a force-balance pneumatic proportional controller. From Ogata (1990) [137]. | 447 |
| Figure 16-23: a) Servomotor that acts as a proportional controller; b) block diagram of the servomotor. From Ogata (1990) [137]. | 448 |
| Figure 16-24: a) Pneumatic proportional-derivative controller; b) step change in e and the corresponding changes in x and p_c plotted versus t ; c) block diagram. From Ogata (1990) [137]. | 449 |
| Figure 16-25: a) Sketch of a hydraulic proportional-derivative controller; b) block diagram. From Ogata (1990) [137]. | 450 |
| Figure 16-26: Hydraulic integral controller. From Ogata (1990) [137]. | 452 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|---|-----|
| Figure 16-27: a) Pneumatic proportional-integral controller; b) step change in e and the corresponding changes in x and p_c plotted versus t ; c) block diagram on the controller; simplified block diagram. From Ogata (1990) [137]. | 453 |
| Figure 16-28: a) Schematic diagram of hydraulic proportional-integral controller; b) block diagram. From Ogata (1990) [137]. | 454 |
| Figure 16-29: a) Pneumatic proportional-integral-derivative controller; b) block diagram of the controller. From Ogata (1990) [137]. | 455 |
| Figure 16-30: Fluidloop modelled as a control system. | 458 |
| Figure 16-31: Control block diagram of the fluid loop for cooling Spacelab experiments. From Microtecnica (1977) [126]. | 459 |
| Figure 16-32: Instrumentation and control system schematics. From Sadunas et al. (1986) [154]. | 460 |
| Figure 16-33: Block diagrams of automatic controllers with a) first-order sensor; b) overdamped second-order sensor; c) underdamped second-order sensor. From Ogata (1990) [137]. | 465 |
| Figure 16-34: Block diagram of a control system. | 465 |
| Figure 16-35: Space radiator system. From Baker et al. (1967) [3]. | 472 |
| Figure 16-36: Space radiator block diagram. From Baker et al. (1967) [3]. | 474 |

Tables

| | |
|--|-----|
| Table 7-1: Effective roughness height of a number of common surfaces. | 95 |
| Table 7-2: Constants for Power Law Approximation. Hydraulically Smooth Regime. | 97 |
| Table 7-3: Loading Factors Accounting for Temperature-Dependence of Diabatic Friction | 98 |
| Table 9-1: Heat Transfer Enhancement Techniques | 130 |
| Table 9-2: Ratio of heat transfer coefficients for constant wall temperature, Nu_T , and constant heat flux, Nu_q , for turbulent pipe flow. From Reynolds (1974) [149]. | 134 |
| Table 10-1: Physical Properties of Typical Liquid Coolants | 180 |
| Table 10-2: Environmental Properties of Typical Liquid Coolants | 183 |
| Table 10-3: Properties of Dow Corning 200 Fluids (Dimethyl Siloxane Polymers) | 205 |
| Table 10-4: Corrosion and Oxidation Test Data for Coolanol Liquids. | 207 |
| Table 10-5: Toxicity of Several Freon Liquids | 208 |
| Table 10-6: Swelling of Elastomers in Several Freon Liquids ^a | 208 |
| Table 10-7: Compatibility of Freon E2 and FC-75 with Elastomers ^a | 209 |
| Table 10-8: Compatibility of Freon E3 with Elastomers, Plastics and Wire Coatings ^a | 209 |
| Table 10-9: Compatibility of Oronite Flo-Cool 100 with Elastomers | 211 |
| Table 11-1: Flow Inside Circular and Flattened Circular Tubes. | 237 |
| Table 11-2: Flow Normal to Banks of Bare Tubes | 239 |
| Table 11-3: Plate-Fin surfaces, plain fins. | 240 |
| Table 11-4: Plate-Fin surfaces, louvered fins. | 242 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|--|-----|
| Table 11-5: Plate-Fin surfaces, strip fins | 243 |
| Table 11-6: Plate-Fin surfaces, wavy fins | 244 |
| Table 11-7: Plate-Fin surfaces, perforated fins | 244 |
| Table 11-8: Plate-Fin surfaces, pin fins | 245 |
| Table 11-9: Finned tubes, circular tubes, circular fins | 246 |
| Table 11-10: Finned tubes, circular tubes, continuous fins | 247 |
| Table 11-11: Finned tubes, flat tubes, continuous fins | 247 |
| Table 11-12: Crossed-Rod, woven-screen and sphere matrices | 248 |
| Table 11-13: Fluid Paths in the Shell Side of Shell-and-Tube Exchangers ^a | 259 |
| Table 11-14: Engineering Practices for Reducing Maldistribution in the Shell Side of Shell-and-Tube Exchangers ^a | 260 |
| Table 11-15: Nominal Dimensions for Numerical Results | 264 |
| Table 11-16: Basic assumptions for the theoretical analysis | 264 |
| Table 11-17: Characteristics of Offset Rectangular Plate-Fin Surfaces | 268 |
| Table 11-18: Core 501 MOD Geometries Derived from Different Models | 269 |
| Table 11-19: Fouling Resistance of Several Common Materials ^a | 272 |
| Table 11-20: Fouling Mechanisms ^a | 273 |
| Table 11-21: Effects of Different Physical Parameters on Fouling ^a | 274 |
| Table 12-1: Rotodynamic Pumps | 284 |
| Table 12-2: Displacement Pumps. Reciprocating | 284 |
| Table 12-3: Displacement Pumps. Rotary | 285 |
| Table 12-4: Main Features of Typical Pumps | 285 |
| Table 12-5: Conversion Factors in the Deduction of Ω from n_s | 288 |
| Table 12-6: Characteristics of Several Commercially Available Pumps | 292 |
| Table 13-1: Optimization of the Liquid to Air Heat Exchanger Case 1) $m_c = 0,0303$ kg.s^{-1} , $T_S - T_{ci} = 20 \text{ K}$ | 307 |
| Table 13-2: Optimization of the Liquid to Air Heat Exchanger Case 2) $m_c = 0,0817$ kg.s^{-1} , $T_S - T_{ci} = 10 \text{ K}$ | 308 |
| Table 14-1: Typical Pressure Losses in Air-Water Annular Flow with Entrainment ($D =$ $25,4 \times 10^{-3} \text{ m}$, $p = 10^5 \text{ Pa}$, $T = 293 \text{ K}$). | 338 |
| Table 14-2: Geometry and Flow-Dependent Terms in Eqs. [14-107] and [14-109] | 345 |
| Table 14-3: Condensation in Ducts. Typical Fluid Properties. Assumed values: $T_{sat} =$ 300 K , $T_{sat} - T_w = 10 \text{ K}$ | 347 |
| Table 14-4: Condensation in Ducts. Parameters Depending on m and D . Assumed values: $m h_{fg} = 1,5 \times 10^3 \text{ W}$, $D = 16,1 \times 10^{-3} \text{ m}$. Stratified case | 348 |
| Table 15-1: Evolution of Requirements | 357 |
| Table 15-2: Two-Phase Loop Line Patterns | 359 |
| Table 15-3: Power Dissipation by Module | 362 |
| Table 15-4: TMS Design Requirements | 363 |

CEN/CLC/TR 17603-31-13:2021 (E)

| | |
|---|-----|
| Table 15-5: TMS Design Concepts..... | 365 |
| Table 15-6: TMS Design Goals | 365 |
| Table 15-7: Evaluation of Concepts..... | 368 |
| Table 15-8: Characteristics of Single-Phase and Two-Phase TMSs with PC Capacitor..... | 372 |
| Table 15-9: PC Capacitor Performance..... | 373 |
| Table 15-10: Single-Phase and Two-Phase TMS Capacitor Specifications | 375 |
| Table 15-11: Fuel Cell Loop Design Requirements | 378 |
| Table 15-12: Orbital-Average Schema. Values of x for Off-Design Operation..... | 380 |
| Table 15-13: Two-Phase System. Radiator Temperatures for Off-Design Operation..... | 380 |
| Table 15-14: Component Mass of a Typical Pumped Loop TMS | 382 |
| Table 15-15: Heat Pump Augmented vs. Classical Fluid Loop Trade-Off | 384 |
| Table 15-16: EOL Radiator Area for 10-year Life..... | 390 |
| Table 15-17: Radiator Area vs. Design Life | 391 |
| Table 15-18: Comparison of Fixed and Steerable Radiator Areas | 392 |
| Table 15-19: Requirements for a Rotary Coupling Onboard. Space Station. | 393 |
| Table 15-20: Joints for Steerable Radiators..... | 394 |
| Table 15-21: NASA development efforts in CPL technology..... | 406 |
| Table 15-22: Comparative Summary of Pumping Systems..... | 414 |
| Table 16-1: Summary of basic control actions | 438 |
| Table 16-2: Summary of Implementation Techniques..... | 456 |
| Table 16-3: Control unit philosophy trade-off. From Microtecnia (1977) [126]..... | 461 |
| Table 16-4: Space computers..... | 463 |
| Table 16-5: Available microprocessor options | 464 |
| Table 16-6: Characteristics of several temperature sensors. | 466 |
| Table 16-7: Characteristics of pressure sensors..... | 467 |
| Table 16-8: Characteristics of flow sensors. | 468 |
| Table 16-9: Characteristics of control valves. From Liptak (1969) [115]..... | 468 |
| Table 16-10: Some MATLAB-Driven CACSD Software .From Cellier and Rimvall (1988) [21]..... | 470 |
| Table 16-11: Some non-MATLAB CACSD Software Packages. From Cellier and Rimvall (1988) [21] | 470 |
| Table 16-12: A Brief Survey of 22 CACSD Packages. From Jamshidi et al. (1992) [100] ... | 471 |
| Table 16-13: System characteristic. From Backer et al. (1967) [3]..... | 473 |
| Table 16-14: Control law for the block diagram in Figure 16-36..... | 475 |

European Foreword

This document (CEN/CLC/TR 17603-31-13:2021) has been prepared by Technical Committee CEN/CLC/JTC 5 "Space", the secretariat of which is held by DIN.

It is highlighted that this technical report does not contain any requirement but only collection of data or descriptions and guidelines about how to organize and perform the work in support of EN 16603-31.

This Technical report (TR 17603-31-13:2021) originates from ECSS-E-HB-31-01 Part 13A .

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1

Scope

Fluid loops are used to control the temperature of sensitive components in spacecraft systems in order to ensure that they can function correctly.

While there are several methods for thermal control (such as passive thermal insulations, thermoelectric devices, phase change materials, heat pipes and short-term discharge systems), fluid loops have a specific application area.

This Part 13 provides a detailed description of fluid loop systems for use in spacecraft.

The Thermal design handbook is published in 16 Parts

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| TR 17603-31-01 | Thermal design handbook – Part 1: View factors |
| TR 17603-31-02 | Thermal design handbook – Part 2: Holes, Grooves and Cavities |
| TR 17603-31-03 | Thermal design handbook – Part 3: Spacecraft Surface Temperature |
| TR 17603-31-04 | Thermal design handbook – Part 4: Conductive Heat Transfer |
| TR 17603-31-05 | Thermal design handbook – Part 5: Structural Materials: Metallic and Composite |
| TR 17603-31-06 | Thermal design handbook – Part 6: Thermal Control Surfaces |
| TR 17603-31-07 | Thermal design handbook – Part 7: Insulations |
| TR 17603-31-08 | Thermal design handbook – Part 8: Heat Pipes |
| TR 17603-31-09 | Thermal design handbook – Part 9: Radiators |
| TR 17603-31-10 | Thermal design handbook – Part 10: Phase – Change Capacitors |
| TR 17603-31-11 | Thermal design handbook – Part 11: Electrical Heating |
| TR 17603-31-12 | Thermal design handbook – Part 12: Louvers |
| TR 17603-31-13 | Thermal design handbook – Part 13: Fluid Loops |
| TR 17603-31-14 | Thermal design handbook – Part 14: Cryogenic Cooling |
| TR 17603-31-15 | Thermal design handbook – Part 15: Existing Satellites |
| TR 17603-31-16 | Thermal design handbook – Part 16: Thermal Protection System |

2 References

| EN reference | Reference in text | Title |
|----------------|-------------------------|--|
| EN 16601-00-01 | ECSS-S-ST-00-01 | ECSS System - Glossary of terms |
| TR 17603-31-08 | ECSS-E-HB-31-01 Part 8 | Thermal design handbook – Part 8: Heat Pipes |
| TR 17603-31-09 | ECSS-E-HB-31-01 Part 9 | Thermal design handbook – Part 9: Radiators |
| TR 17603-31-10 | ECSS-E-HB-31-01 Part 10 | Thermal design handbook – Part 10: Phase-Change Capacitors |
| TR 17603-31-14 | ECSS-E-HB-31-01 Part 14 | Thermal design handbook – Part 14: Cryogenic Cooling |
| TR 17603-31-15 | ECSS-E-HB-31-01 Part 15 | Thermal design handbook – Part 15: Existing Satellites |

All other references made to publications in this Part are listed, alphabetically, in the **Bibliography**.

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