

User-Manual for the



Calculation Tool

Content

1. Introduction 1

2. Software Installation..... 2

3. Starting-Up..... 4

 3.1. Startup-Screen.....4

 3.2. Login5

 3.3. Header6

 3.4. Menu7

 3.5. Styles and Display10

 3.6. Terminal11

 3.7. Company Data.....13

 3.8. Reminder15

4. The Programs 18

 4.1. Category 1 – Pressure19

 4.2. Category 2 – Flow19

 4.3. Category 3 – Chemical20

 4.4. Category 4 – Energy20

 4.5. Category 5 – Electrical.....21

 4.6. Category 6 – Mechanical21

 4.7. Category 7 – Mixed.....22

 4.8. Category 8 – General22

5. GeneralProgram Description 23

 5.1. Calculate-Button26

 5.2. Print-Button29

5.3.	Info-Button	31
5.4.	Notes-Button	34
5.5.	Values-Button	35
5.6.	Hint-Button	36
6.	Category Pressure	37
6.1.	Safety Distance	37
6.2.	Osmotic Pressure	43
6.3.	Pressure Surge Analysis	47
6.4.	Vacuum Calculations	54
6.5.	Water Density	60
6.6.	Frictional Losses	72
7.	Category Flow	84
7.1.	Flow Rates	84
7.2.	Charges	91
7.3.	Operating Conditions	101
7.4.	Standard Conditions	109
7.5.	Permeability	113
7.6.	Membrane Flux	117
8.	Category Chemical	122
8.1.	Chemical Dosing	122
8.2.	Water Hardness	129
8.3.	Crystalization Diagram NaOH	135
8.4.	Stoichiometry	138
8.5.	Periodic Table of Elements	145
8.6.	Chemical Resistance	151
9.	Category Energy	154

9.1.	Heat Exchange	154
9.2.	Thermal Combustion	160
9.3.	Energy Balance – Position Energy	176
9.4.	Energy Balance – Kinetic Energy	179
9.5.	Energy Balance – Thermal Energy.....	182
9.6.	Energy Balance – Pressure Volume Work	185
9.7.	Energy Balance – Potential Energy Spring	188
9.8.	Energy Balance – Electrical Capacitive Energy	191
9.9.	Energy Balance – Electro-magnetic Energy.....	194
9.10.	Energy Balance – Electric Term Energy.....	197
9.11.	Energy Balance – Radiant Energy.....	200
9.12.	Energy Balance – Kinetic Gas Energy.....	203
9.13.	Energy Balance – Comparison of Energies.....	206
9.14.	Heat Capacity	208
9.15.	ISO-Conditions.....	217
9.16.	ISEN-Condotions	224
10.	Category Electrics	230
10.1.	Consumption.....	230
10.2.	Cross Section.....	234
10.3.	Intrinsic Safety	255
10.4.	Measure Range	264
10.5.	Power Rates	269
10.6.	Electrical Resistance –Resistance.....	277
10.7.	Electrical Resistance –Temp. Resistance	280
10.8.	Electrical Resistance – VoltageDrop	283
10.9.	Electrical Resistance – OhmsLaw	287
10.10.	Electrical Resistance – Impedance.....	293

10.11.	Electrical Resistance – Testing Bridge (bridge circuit)	299
11.	Category Mechanics	308
11.1.	Gear Ratio.....	308
11.2.	Stress Analysis	320
11.3.	Fastening Torques	344
11.4.	Engine Vibration.....	352
11.5.	Welding Current	357
11.6.	MTBF – Mean Time Between Failures	386
12.	Category Mixed	393
12.1.	Kinematics	393
12.2.	Steam Table.....	405
12.3.	Coefficient Valve	415
12.4.	Open Area Valve.....	425
12.5.	Reduction Rate	429
12.6.	Geometry	439
13.	Category General.....	447
13.1.	Small Business Offer	447
13.2.	Commissioning Protocol.....	454
13.3.	Program Parser.....	463
13.4.	IP-Address	472
13.5.	Randomize.....	479
13.6.	Date and Day	482

Copyright: 2012 - 2017

Release: Beta V1.0 – APR 2019