

*T.E.S.S. COMPONENT  
LIBRARIES for TRNSYS 16*

**THERMAL ENERGY SYSTEM SPECIALISTS  
2916 MARKETPLACE DRIVE - SUITE 104  
MADISON, WI 53719**

**Note: In all CHP models developed for TRNSYS and described in this document, the inlet steam state is reset inside all component models based on the inlet steam enthalpy and inlet steam pressure. Unless otherwise noted, the pressure of the steam is assumed to be the absolute pressure and not the gauge pressure.**

# TABLE OF CONTENTS

Note: In all CHP models developed for TRNSYS and described in this document, the inlet steam state is reset inside all component models based on the inlet steam enthalpy and inlet steam pressure. Unless otherwise noted, the pressure of the steam is assumed to be the absolute pressure and not the gauge pressure. .... 2

TYPE 506: EVAPORATIVE COOLER (SWAMP COOLER).....	5
TYPE 507: FOGGING DEVICE.....	7
TYPE 508: COOLING COIL (VARIOUS CONTROL MODES).....	9
TYPE 591: LOAD FOLLOWING STEAM TURBINE.....	13
TYPE 592: FLOW FOLLOWING STEAM TURBINE .....	17
TYPE 593: STEAM CONDENSER – KNOWN CONDENSING PRESSURE.....	20
TYPE 594: STEAM DIVERTING VALVE .....	21
TYPE 595: STEAM MIXING VALVE .....	23
TYPE 596: PRESSURE REDUCING VALVE .....	25
TYPE 597: CONDENSATE PUMP .....	26
TYPE 598: STEAM CONDENSER.....	28
TYPE 599: ELECTRICAL GENERATOR.....	30
TYPE 602: GEAR BOX (EFFICIENCY FROM DATA FILE) .....	32
TYPE 603: CONSTANT EFFICIENCY GEAR BOX.....	34
TYPE 605: IMPOSED LOAD ON A STEAM FLOW .....	36
TYPE 606: LOAD REMOVAL FROM A STEAM FLOW (WITH CONDENSATE).....	38
TYPE 608: CONDENSATE PREHEATER – PINCHPOINT METHOD.....	40
TYPE 609: CONDENSATE PREHEATER – EFFECTIVENESS APPROACH .....	43
TYPE 610: STEAM DESUPERHEATER .....	45
TYPE 611: FLASH TANK.....	47
TYPE 612: STEAM TRAP OR SINGLE INLET STEAM SEPARATOR .....	49
TYPE 613: STEAM PIPE.....	50
TYPE 614: TWO- INLET STEAM SEPARATOR.....	52
TYPE 615: DOUBLE-EFFECT STEAM-FIRED ABSORPTION CHILLER.....	54

TYPE 616: SINGLE-EFFECT STEAM-FIRED ABSORPTION CHILLER .....	59
TYPE 617: STEAM SUPERHEATER.....	63
TYPE 618: CONDENSATE PUMP (FLOW RATE NOT SET).....	65
TYPE 619: OPEN FEEDWATER HEATER / DEAERATING HEATER /OPEN STEAM HEATER – STEAM FLOW CALCULATED .....	67
TYPE 620: FITTING PRESSURE LOSS .....	70
TYPE 621: CLOSED FEEDWATER HEATER – STEAM FLOW CALCULATED TO ACHIEVE USER-DESIGNATED OUTLET CONDITION.....	71
TYPE 622: CLOSED FEEDWATER HEATER WITH DRAIN COOLER – STEAM FLOW CALCULATED.....	74
TYPE 623: GAS COMPRESSOR.....	77
TYPE 624: STEAM OR WATER INJECTION DEVICE.....	79
TYPE 625: GAS TURBINE WITH OR WITHOUT WATER INJECTION (CATALOG DATA)	81
TYPE 626: HEAT RECOVERY HOT WATER GENERATOR.....	83
TYPE 627: HEAT RECOVERY HOT WATER GENERATOR WITH LOAD FLOW CALCULATED.....	85
TYPE 628: PERFORMANCE MAP FULL LOAD STEAM TURBINE .....	87
TYPE 629: AIR COMPRESSOR (MOIST AIR CALCULATIONS) .....	89
TYPE 630: AIR COMPRESSOR (DRY AIR).....	91
TYPE 631: AIR PREHEATER / AIR COOLED INTERCOOLER / REGENERATOR – THEORETICAL GAS TURBINE SYSTEMS.....	93
TYPE 632: FLUID COOLED INTERCOOLER – THEORETICAL GAS TURBINE SYSTEMS	95
TYPE 633: COMBUSTION DEVICE – THEORETICAL GAS TURBINE SYSTEMS .....	97
TYPE 634: TURBINE SECTION – THEORETICAL GAS TURBINE SYSTEMS .....	99
TYPE 635: STEAM-STEAM HEAT EXCHANGER.....	101
TYPE 636: HEAT RECOVERY STEAM-GENERATOR .....	104
TYPE 637: HEAT RECOVERY STEAM-GENERATOR – MAXIMUM STEAM FLOW .....	106
TYPE 638: STEAM BOILER (EFFICIENCY AS INPUT).....	108
TYPE 639: STEAM BOILER (EFFICIENCY FROM DATA FILE).....	111

TYPE 640: FEEDWATER STORAGE TANK..... 114

TYPE 659: EXHAUST GAS SUPPLEMENTAL FIRING OR PROPORTIONAL HOT WATER  
BOILER..... 117

TYPE 682: HEATING AND COOLING LOADS IMPOSED ON A FLOW STREAM..... 119