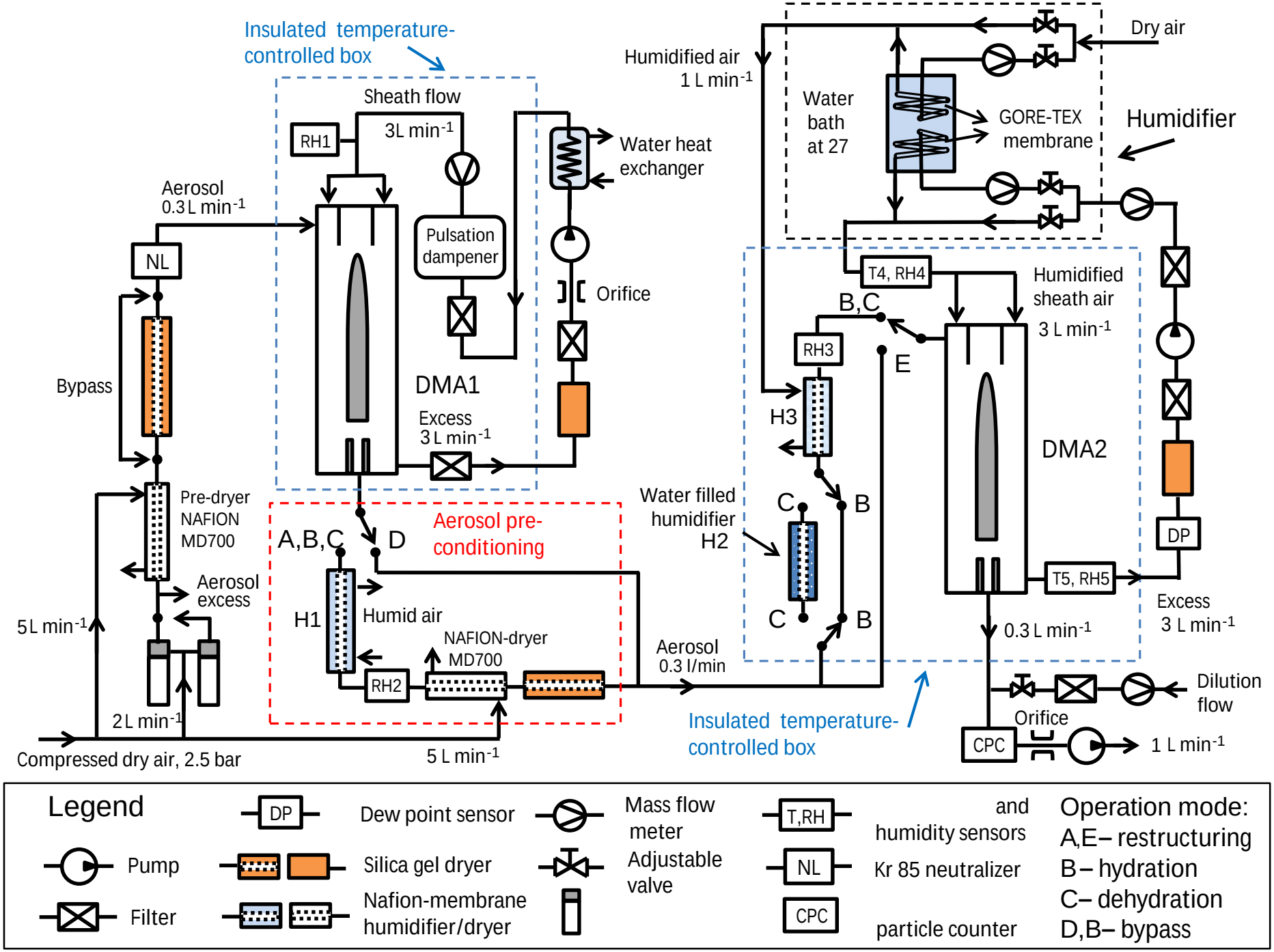
Insulated temperature-controlled box
Sheath flow
RH1
3L min-1
Water heat exchanger
Aerosol 0.3 L min-1
Pulsation dampener
NL
Orifice
Bypass
DMA1
Excess 3 L min-1
Pre-dryer NAFION MD700
Aerosol pre-conditioning
A,B,C
D
Aerosol excess
5 L min-1
H1
Humid air
NAFION-dryer MD700
RH2
2 L min-1
5 L min-1
Compressed dry air, 2.5 bar
Aerosol 0.3 l/min
Humidified air 1 L min-1
Dry air
Water bath at 27
GORE-TEX membrane
Humidifier
T4, RH4
Humidified sheath air 3 L min-1
B,C
RH3
E
H3
DMA2
Water filled humidifier H2
C
B
T5, RH5
DP
Excess 3 L min-1
0.3 L min-1
Dilution flow
Orifice
CPC
1 L min-1
Insulated temperature-controlled box
Legend
DP
Dew point sensor
Mass flow meter
T,RH
and humidity sensors
Pump
Silica gel dryer
Adjustable valve
NL
Kr 85 neutralizer
Filter
Nafion-membrane humidifier/dryer
CPC
particle counter
Operation mode:
A,E– restructuring
B– hydration
C– dehydration
D,B– bypass