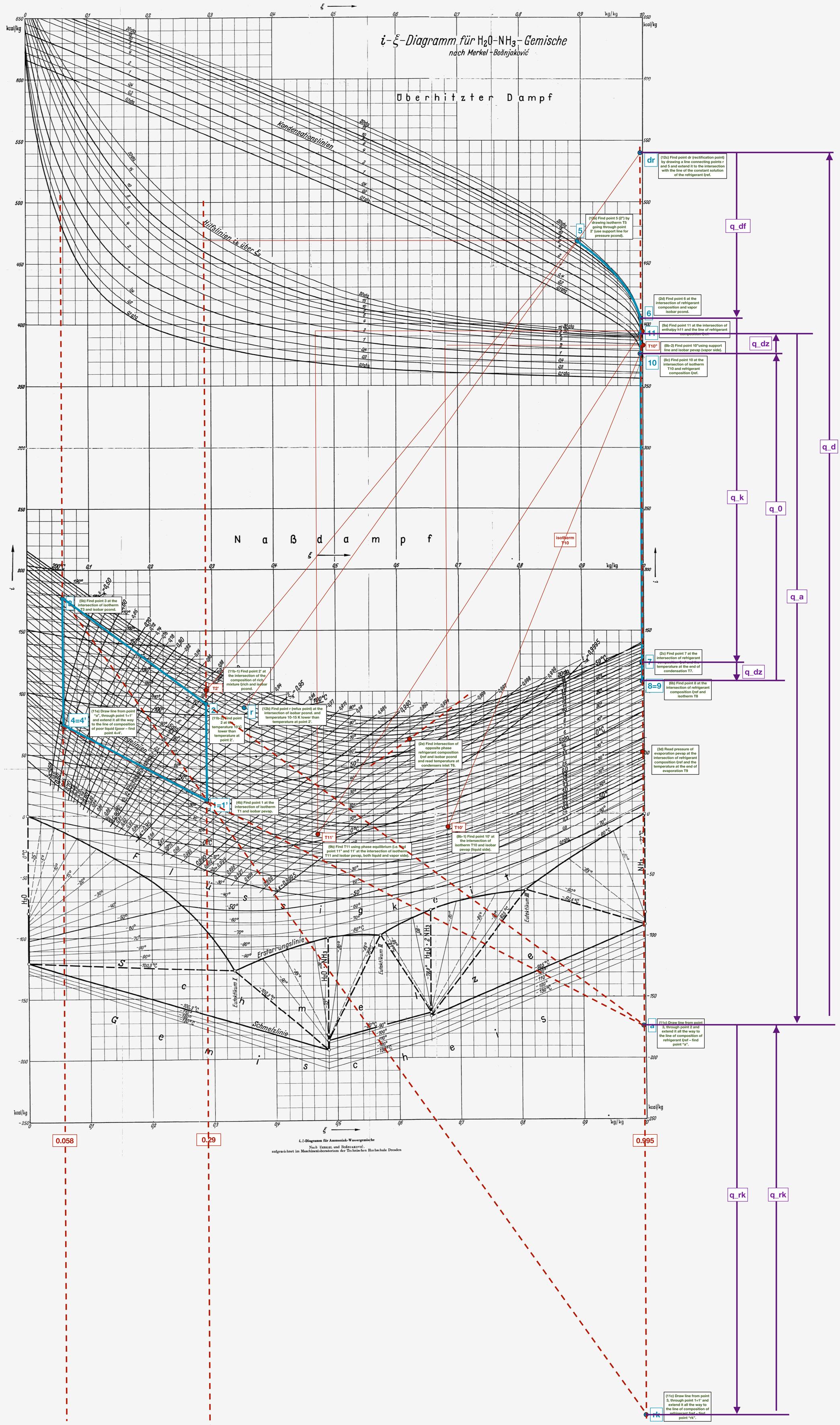
i-ξ-Diagramm für H2O-NH3-Gemische
nach Merkel-Bošnjaković
Überhitzter Dampf
Kondensationslinien
Hilfslinien i u. ξ
Naßdampf
Erstarrungslinie
Schmelzlinie
Eutektikum I
Eutektikum II
Eutektikum III
H2O
NH3
kcal/kg
kg/kg
dr
5
6
11
T10"
10
7
8=9
a
rk
q_df
q_dz
q_k
q_0
q_a
q_d
q_rk
0.058
0.29
0.995
isotherm T10
T2'
2
r
4=4'
=1'
T11'
T10'
(12c) Find point dr (rectification point) by drawing a line connecting points r and 5 and extend it to the intersection with the line of the constant solution of the refrigerant ξref.
(12a) Find point 5 (2") by drawing isotherm T5 going through point 2' (use support line for pressure pcond).
(2d) Find point 6 at the intersection of refrigerant composition and vapor isobar pcond.
(9a) Find point 11 at the intersection of enthalpy h11 and the line of refrigerant composition ξref.
(8b-2) Find point 10"using support line and isobar pevap (vapor side).
(8c) Find point 10 at the intersection of isotherm T10 and refrigerant composition ξref.
(5b) Find point 3 at the intersection of isotherm T3 and isobar pcond.
(11b-1) Find point 2' at the intersection of the composition of rich mixture ξrich and isobar pcond.
(2c) Find point 7 at the intersection of refrigerant composition ξref and the temperature at the end of condensation T7.
(6b) Find point 8 at the intersection of refrigerant composition ξref and isotherm T8
(11e) Draw line from point "a", through point 1=1' and extend it all the way to the line of composition of poor liquid ξpoor – find point 4=4'.
(11b-2) Find point 2 at the temperature 10°C lower than temperature at point 2'.
(12b) Find point r (refux point) at the intersection of isobar pcond. and temperature 10-15 K lower than temperature at point 2'.
(2e) Find intersection of opposite phase refrigerant composition ξref and isobar pcond and read temperature at condensers inlet T6.
(3d) Read pressure of evaporation pevap at the intersection of refrigerant composition ξref and the temperature at the end of evaporation T9
(4b) Find point 1 at the intersection of isotherm T1 and isobar pevap.
(9b) Find T11 using phase equilibrium (i.e. find point 11" and 11' at the intersection of isotherm T11 and isobar pevap, both liquid and vapor side).
(6b-1) Find point 10' at the intersection of isotherm T10 and isobar pevap (liquid side).
(11c) Draw line from point 3, through point 2 and extend it all the way to the line of composition of refrigerant ξref – find point "a".
(11c) Draw line from point 3, through point 1=1' and extend it all the way to the line of composition of refrigerant ξref – find point "rk".
i, ξ-Diagramm für Ammoniak-Wassergemische
Nach MERKEL und BOŠNJAKOVIĆ,
aufgezeichnet im Maschinenlaboratorium der Technischen Hochschule Dresden