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Author: Baojun Luo

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## Theoretical assessment of an ejector enhanced oil flooded compression cycle

Baojun Luo\*

College of Mechanical and Vehicle Engineering, Hunan University, Changsha 410082, China

Corresponding author. Address: College of Mechanical and Vehicle Engineering,

Hunan University, Changsha, Hunan 410082, China. Tel.: +86-13637492492.

E-mail address: luobaojun@hnu.edu.cn.

Nomenclature		Subscript	
Variable			
COP	heating coefficient of performance	c	condenser
$h$	enthalpy (J/kg)	diff	diffusion nozzle
$\dot{m}$	mass flow rate (kg/s)	e	evaporator
$P$	pressure (kPa)	g	gas
$\dot{Q}$	heat capacity (W)	is	isentropic
$s$	entropy ( $\text{J}\cdot\text{kg}^{-1}\cdot\text{K}^{-1}$ )	l	liquid
$T$	temperature (K)	m	mixture
$\dot{w}$	work (W)	mix	mixing chamber
$\rho$	density ( $\text{kg}/\text{m}^3$ )	mn	motive nozzle
$v$	specific volume ( $\text{m}^3/\text{kg}$ )	ref	refrigerant
$\eta$	efficiency (-)	sn	suction nozzle
$x$	oil mass fraction (-)	o	oil
		oc	oil cooler
		1,2,...,15	state points shown in Figs. 1-2

### Highlights

- A combined oil flooded compression (OFC) and ejector cycle is proposed.
- The performance with R32 is compared to ejector and OFC cycles.
- The COP rise can be up to nearly 4% over ejector and OFC cycles.
- The effects of internal heat exchanger on the novel cycle is investigated.

### Abstract

Compressor loss and throttling loss are major thermodynamic losses in basic vapor compression cycle. For this reason, an ejector enhanced oil flooded compression cycle is proposed. To evaluate the performance, a mathematical model is established and the performance of this cycle with R32 as the working fluid is

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