



SDI Review Form 1.6

Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	2014_BJAST_13696
Title of the Manuscript:	Efficient open isobaric expansion based thermal cycles at low temperatures
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<u>Compulsory</u> REVISION comments	The authors do not provide any data or considerations on the pressure drop inside the 3w valve. Don't say if it's negligible or interferes with the process. It is not clear how calculate compressor work, then the efficiency component. Finally do not give indications on how the compressor work can decrease to the pressure loss increases and decrease compressor performance	For the purposes of demonstrating that the open processes based thermal cycle can develop an ideal thermal efficiency higher than the Carnot engine, the described cycle has been analysed as an ideal cycle. Consequently at low speed the losses due to the internal irreversibilities are considered as negligible although in a real cycle such losses should be considered. The compressor work is calculated by the enthalpy differences (equation (12)), since the transformation carried out during the compression process corresponds to an open process. The efficiency depends on the net work which is defined as the difference between input heat and output heat. See for instance: "Michael J. Moran and Howard N. Shapiro, Fundamentals of engineering thermodynamics, 4th ed. 1999, John Wiley & Sons, USA" Pages 70 and 71. This is a general method for every thermal cycle. The compressor work defined as $W_{12} = (h_2 - h_1)$ in equation (12) doesn't decrease to the increase of pressure ratio, but the specific work of the cycle. This is completely normal in a thermal cycle. At selected pressures the compressor is really a blower which develops very low work defined as $(h_2 - h_1)$.
<u>Minor</u> REVISION comments	Competing interest:-If there are any competing interest please clarify.	
<u>Optional/General</u> comments		