

STUDY AND APPLICATIONS OF A PNEUMATIC ACCELERATOR  
FOR VARIETY SPEED OF PUNCHING

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**SUPERVISOR'S DECLARATION**

We hereby declare that we have checked this project and in our opinion this project is satisfactory in terms of scope and quality for the award of the degree of Bachelor of Mechanical Engineering with Manufacturing

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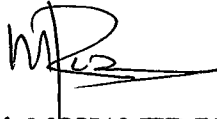


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**To my Beloved Mother & Father**

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### LIST OF SYMBOLS

$T$	Thickness of material (mm)
$k$	A coefficient that depends on the type of die
$k$	0.01. For a die of metal ceramic
$\tau_m$	shear strength of material
UTS	Ultimate Tensile Strength
$F$	Maximum punch force
$T$	Sheet thickness
$L$	Total length sheared
$A_1$	area of clearance between hammer cover and piston head $F_{\max}$
	maximum press force
$W_k$	work done in compressing the air in the piston chamber
$g$	Gravitational acceleration
$c$	Metal thickness
$l_c$	cutting perimeter
$\sigma_s$	Ultimate shear stress of metal
$(d)$	percentage penetration
$C$	Clearance
$P_{in}$	Pressure inlet