1

2017 8 4 9 1 Eakkachai Warinsiriruk

2

MIG

3

2017 8 4
2017 8 5
2017 8 30 MSC
2017 8 31
2017 9 1

4

Mahidol University Industrial Engineering

Professor Eakkachai Warinsiriruk

1888 1943
4 1969
17 6 9
200 1

5

5.1

A5083-H112 A5356 5.1

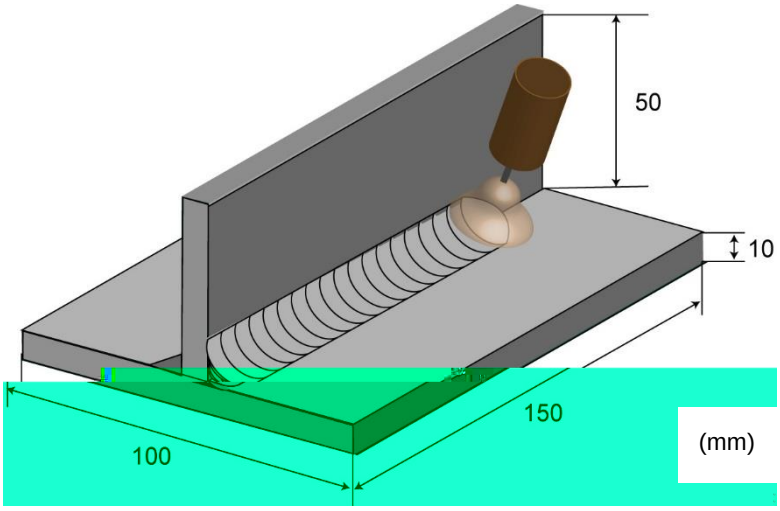
5.1

	Al	Cr	Cu	Fe	Mg	Mn	Si	Ti	Zn	Be
5	0.06 ··0.20	≤0.10	≤0.0003	A5356	Bal.	0.05 ··0.20	≤0.10	≤0.40	4.50 –5.50	0.05 ··0.20	≤0.0

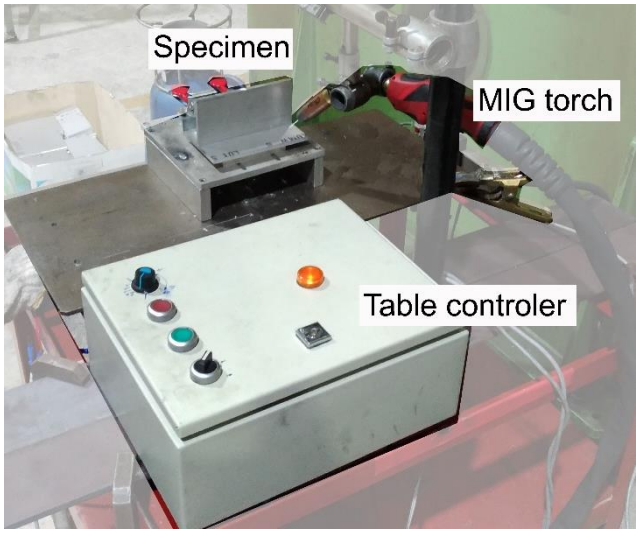
5.2

5.1 MIG

5.2



5.1 MIG



5.2

5.3 **MIG**

MIG 5.3 5.4 5.5
3 .

MIG

1

5.1 .

$$\text{Duty cycle}, \% = {}^{T_P}/_{T} \times 100 \quad \cdots(\ 5.1)$$

5.3

5.4

5.5

5.4

5.2

5.6

$$\text{The rate of porosity occurrence, \%} = \frac{\textit{The total area of porosities,mm}^2}{\textit{The total area of thefructure surface,mm}^2} \times 100 \quad \cdots(5.2)$$

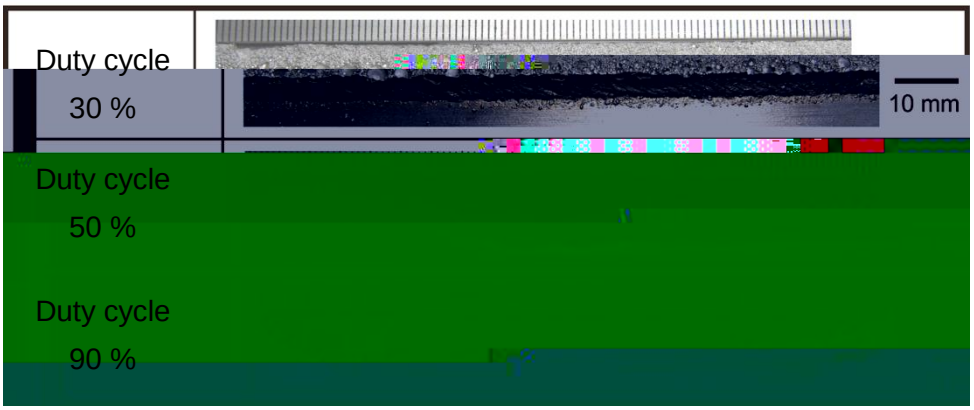
5.6

5.5

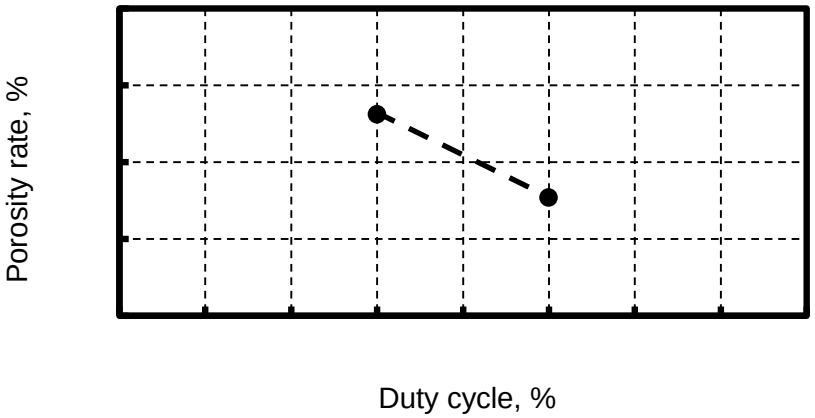
30 % 50 % 90 %
20.6 V 23.1 V 24.8 V 5.1 90 %
5.7
30 % 50 % 13 %
8 % 5.8

5.1

Duty cycle, %	30	50	90
Voltage, V	20.6	23.1	24.8
Travel speed, cm/min.	30		
Wire feeding speed, m/min.	11		
Delta wire feeding speed, m/min.	4.8		
Frequency, Hz	3.0		
Surface temperature before test,	30		
Oxide film	non-removed		



5.7



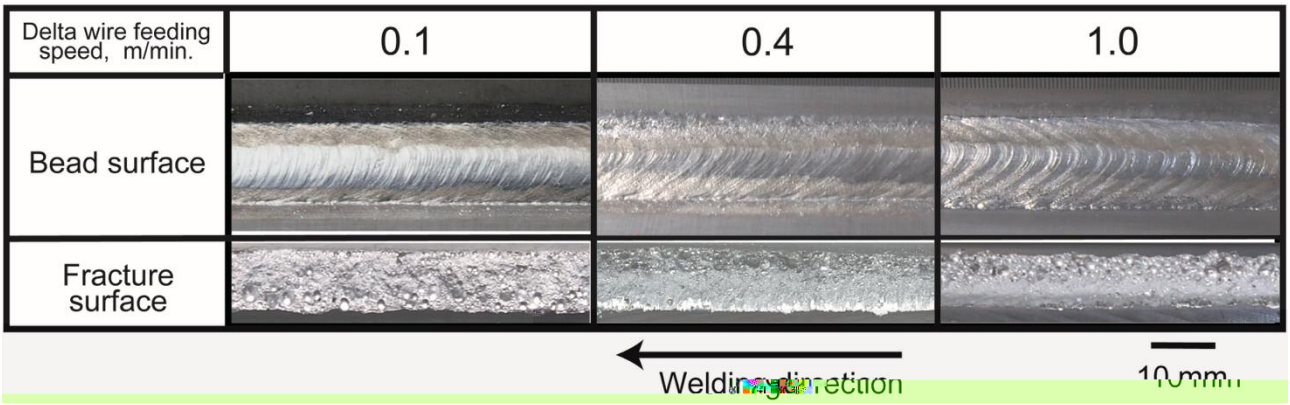
5.8

5.6

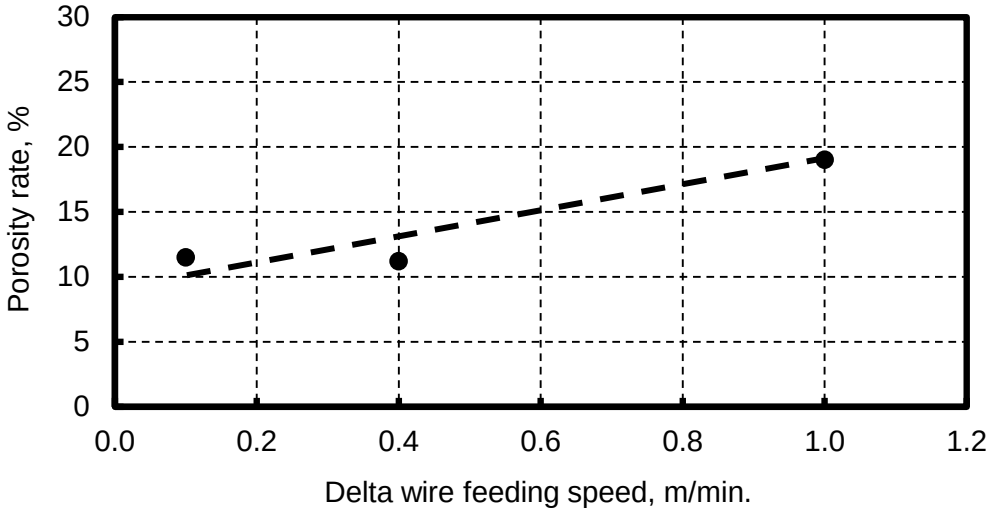
0.1 m/min. 0.4 m/min. 1.0 m/min.
24 V 5.2
5.9
12 % 11 % 19 % 5.10

5.2

Duty cycle, %	50		
Voltage, V	24		
Travel speed, cm/min.	30		
Wire feeding speed, m/min.	11		
Delta wire feeding speed, m/min.	0.1	0.4	1.0
Frequency, Hz	3.0		
P)	30		
Oxide film	non-removed		



5.9



5.10

5.7

30

cm/min. 60 cm/min. 24 V

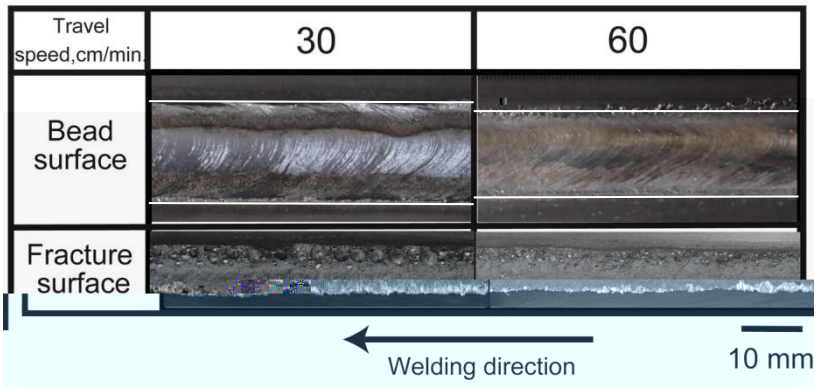
5.3

5.11

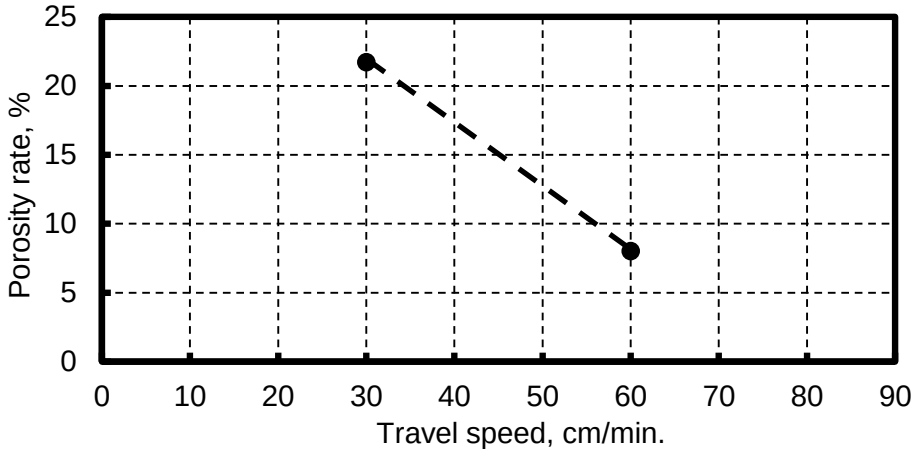
22 % 8 % 5.12

5.3

Duty cycle, %	50	
Voltage, V	24	
Travel speed, cm/min.	30	60
Wire feeding speed, m/min.	14.9	
Delta wire feeding speed, m/min.	0.4	
Frequency, Hz	0.5	
P)	30	
Oxide film	non-removed	



5.11



5.12

6

MIG (A5083)

-
-
-

7

Eakkachai Warinsiriruk