タイ国立科学技術開発庁（タイ王国）　研修報告書
高速度ビデオカメラを用いたコールドワイヤーTIG 溶接の可視化及び機械的特性の評価

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１．　はじめに

2017　8　4　　9　1

２．　共同研究課題の決定

(　　MTEC)

MTEC　　TIG

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Dr. Nirut Naksuk

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TIG

Fig. 5.2.1.1 nac( )

RX-6 Table 5.2.1.1

Fig. 5.2.1.2

808 960nm

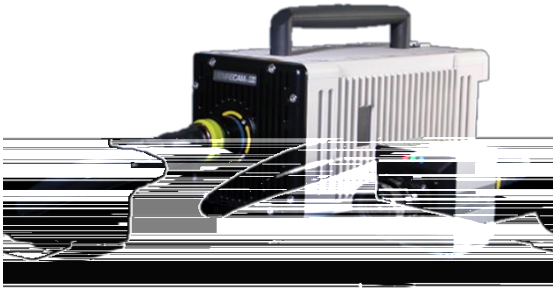

Fig. 5.2.1.1 High speed camera

Table 5.2.1.1 Camera condition

Using lens	AF micro Nikon 105mm
Frame speed, fps	500
Shutter speed, s	1/1k
Diaphragm	32
Frame size	512x512
Band-pass filter , nm	808/960

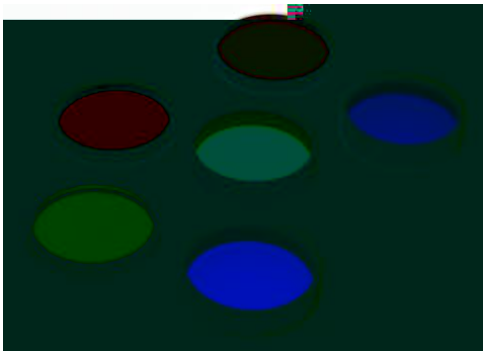

Fig. 5.2.1.2 Band-pass filter

Fig. 5.2.2.1 Table 5.2.2.1 125-135A
0.8-2mm/sec 8-15mm/sec 4-6mm 2-4Hz
130 1.mm/sec
12mm/sec 4mm 3Hz

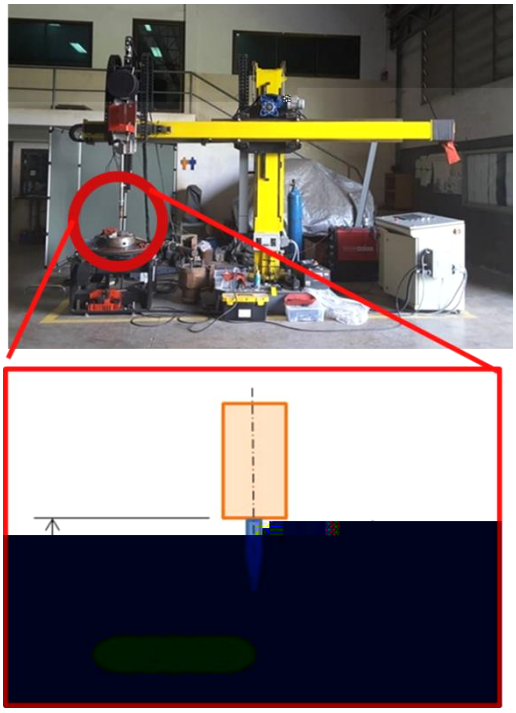

Fig. 5.2.2.1 Experimental image

Table 5.2.2.1

Welding Parameters (Unit)	Values

Fig. 5.3.1 808nm
960nm

960nm

Fig. 5.3.2
A
B TIG 1mm

C
TIG

TIG

ABC
Fig. 5.3.3 ABC

B C

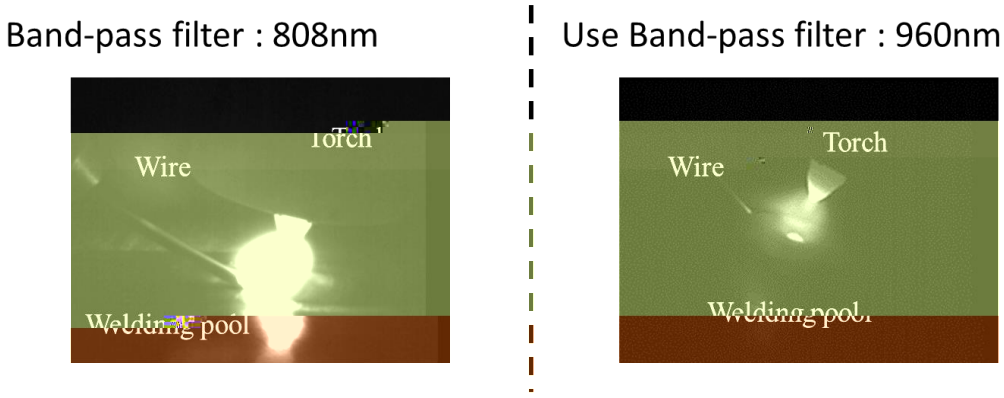

Fig. 5.3.1 Effect of band-pass filter

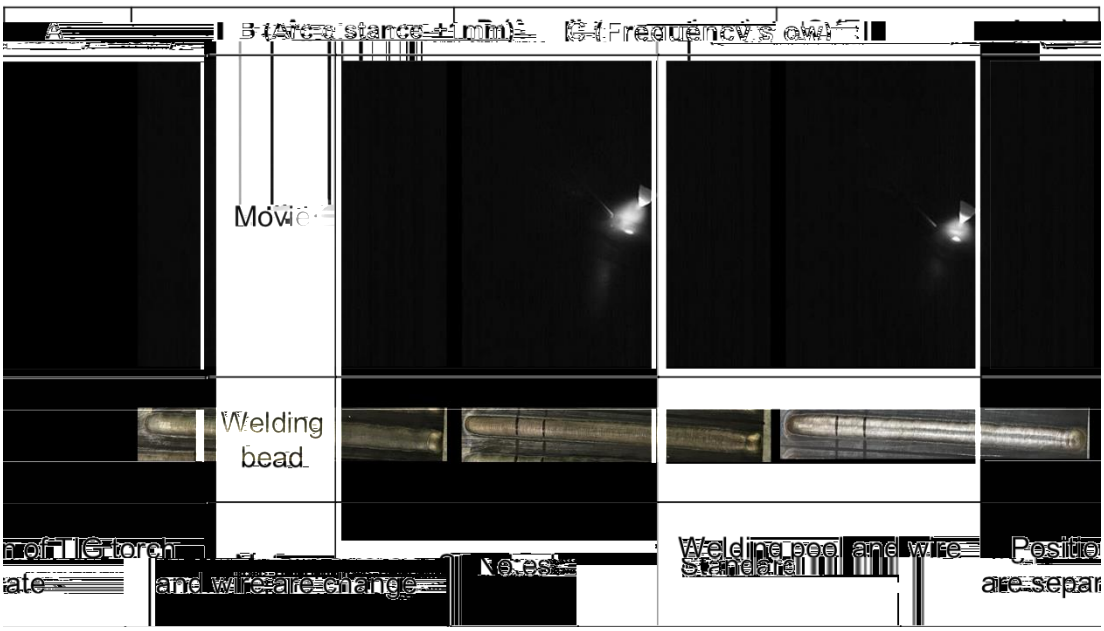

Fig. 5.3.2 Result

➢ Length of bead

		A	B	C
	Bead width，mm	6.8	7.0	7.1
	Bead Hight，mm	1.7	1.7	1.8
	Penetration，mm	1.0	1.0	0.9
	HAZ width，mm	2.0	2.4	2.1

➢ Hardness test

		A	B	C
	Base metal，HV	132	128	150
190	HAZ area，HV	179		179

Fig. 5.3.3 Mechanical properties

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