

# Sven Grauer Photography

## Long Exposure Times with Neutral Density Filter (Full Stops)

Time	1/4000	1/2000	1/1000	1/500	1/250	1/125	1/60	1/30	1/15	1/8	1/4	0"5	1s	2s	4s	8s	15s	30s
Stops																		
ND4 (+2)	1/1000	1/500	1/250	1/125	1/60	1/30	1/15	1/8	1/4	1/2	1s	2s	4s	8s	16s	32s	60s	120s
ND8 (+3)	1/500	1/250	1/125	1/60	1/30	1/15	1/8	1/4	1/2	1s	2s	4s	8s	16s	32s	64s	120s	240s
ND16 (+4)	1/250	1/125	1/60	1/30	1/15	1/8	1/4	1/2	1s	2s	4s	8s	16s	32s	64s	128s	240s	480s
ND64 (+6)	1/60	1/30	1/15	1/8	1/4	1/2	1s	2s	4s	8s	16s	32s	64s	128s	256s	512s	960s	1920s
Hoya ND400 (+8 2/3)	1/10	1/5	0"4	0"8	1"6s	3"2s	6s	13s	25s	50s	100s	200s	400s	800s	1600s	3200s	6000s	12000s
B&W 110 (+10)	1/4	1/2	1s	2s	4s	8s	16s	33s	66s	125s	250s	500s	1000s	2000s	4000s	8000s	15000s	30000s

### Remarks:

Sometimes an exact exposure time can't be fixed in the camera settings; i.e. the double shutter speed time of 1/125s is of course not 1/60s. But the difference should be more or less negligible. Anyway, I always highly recommend to watch the histogram of your digital camera. It's the best way to verify if the exposure time is correct !  
Around sunrise and sunset the light situation can change rapidly. So it can be quite difficult to work with long exposure times.

As far as I'm concerned I would say that the Hoya ND400 filter goes more to 9 stops.  
Also some photographers reported that 10 stop filters are sometimes more like 11 stops.

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## Long Exposure Times with Neutral Density Filter (1/3 Stops)

Time	1/200	1/160	1/125	1/100	1/80	1/60	1/50	1/40	1/30	1/25	1/20	1/15	1/13	1/10	1/8	1/6	1/5	1/4
Stops																		
ND4 (+2)	1/50	1/40	1/30	1/25	1/20	1/15	1/13	1/10	1/8	1/6	1/5	1/4	0"3	0"4	0"5	0"6	0"8	1s
ND8 (+3)	1/25	1/20	1/15	1/13	1/10	1/8	1/6	1/5	1/4	0"3	0"4	0"5	0"6	0"8	1s	1"3s	1"6s	2s
ND16 (+4)	1/13	1/10	1/8	1/6	1/5	1/4	0"3	0"4	0"5	0"6	0"8	1s	1"3s	1"6s	2s	2"5s	3"2s	4s
ND64 (+6)	0"3	0"4	0"5	0"6	0"8	1s	1"3s	1"6s	2s	2"5s	3"2s	4s	5s	6s	8s	10s	13s	16s
Hoya ND400 (+8 2/3)	2s	2"5s	3"2s	4s	5s	6s	8s	10s	13s	16s	20s	25s	30s	40s	50s	66s	80s	100s
B&W 110 (+10)	5s	6,25s	8s	10s	12,5s	16s	20s	25s	33s	40s	50s	66s	76s	100s	125s	166s	200s	250s

Time	0"3	0"4	0"5	0"6	0"8s	1s	1"3s	1"6s	2s	2"5s	3"2s	4s	5s	6s	8s	10s	13s	15s
Stops																		
ND4 (+2)	1"3	1"6	2s	2"5s	3"2s	4s	5s	6s	8s	10s	13s	16s	20s	24s	32s	40s	54s	60s
ND8 (+3)	2"5	3"2	4s	5s	6s	8s	10s	13s	16s	20s	25s	32s	40s	48s	64s	80s	108s	120s
ND16 (+4)	5s	6s	8s	10s	13s	16s	20s	26s	32s	40s	51s	64s	80s	96s	128s	160s	216s	240s
ND64 (+6)	20s	24s	32s	40s	52s	64s	80s	108s	128s	160s	204s	256s	320s	384s	512s	640s	864s	960s
Hoya ND400 (+8 2/3)	133s	160s	200s	266s	320s	400s	533s	664s	800s	1000s	1280s	1600s	2000s	2400s	3200s	4000s	5200s	6000s
B&W 110 (+10)	333s	400s	500s	666s	800s	1000s	1333s	1666s	2000s	2500s	3200s	4000s	5000s	6000s	8000s	10000s	13000s	15000s

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