

1

1

2

3

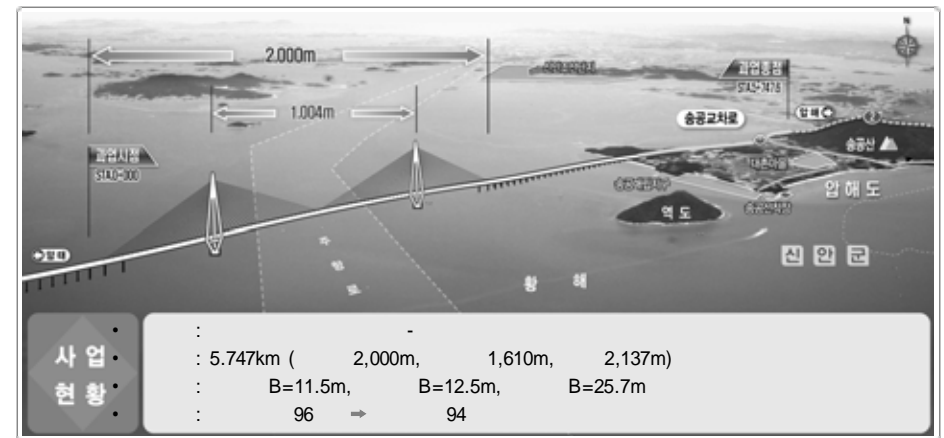
4

5

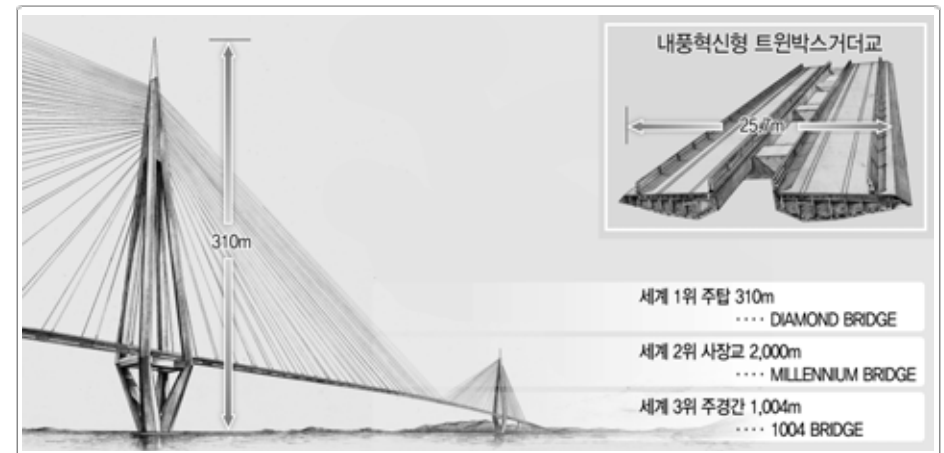
6

4


1



2



천년꿈의 완성!
1004 DIAMOND BRIDGE



과업교량
압해도 압해도
다이아몬드제도

01. 계획성
World Best 교량 계획

목표 실현 위한
4대 핵심 설계

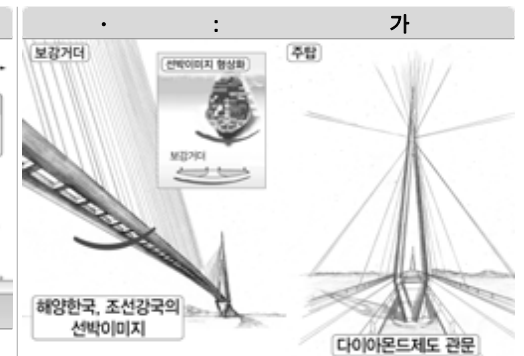
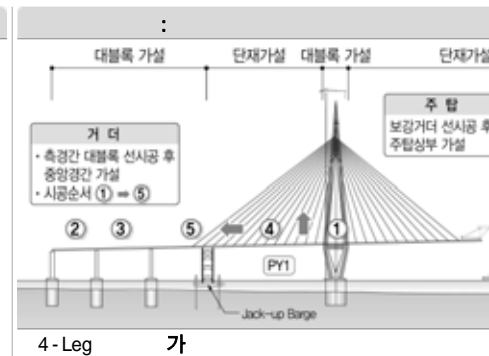
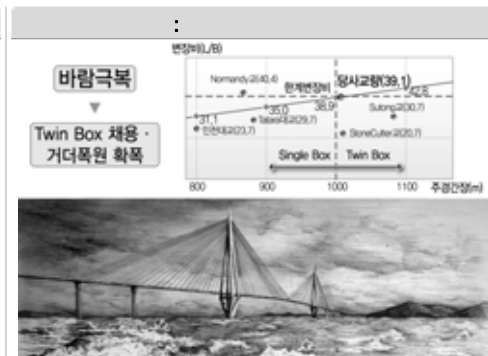
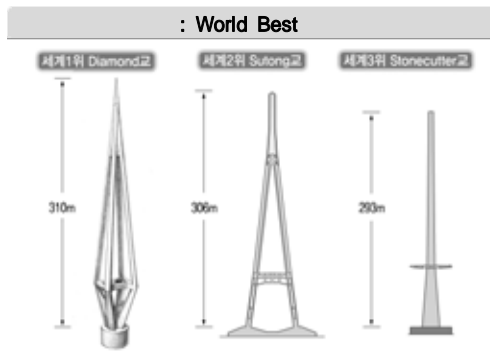
02. 구조안전성
구조안전성
초장대교 설계
위험요소 극복

03. 시공성
초장대교 시공
위험요소 극복

04. 경관·관광자원화
한국대표
랜드마크 가치창출

World Best 사장교

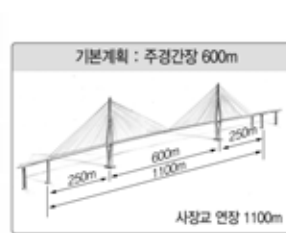
- ① 세계 1위 높이 · 세계 최초 형태의 입체 Diamond 주탑
- ② 세계 2위 연장 2,000m의 Millennium 사장교
- ③ 세계 3위 주경간 1004m의 천사개 섬 Landmark화



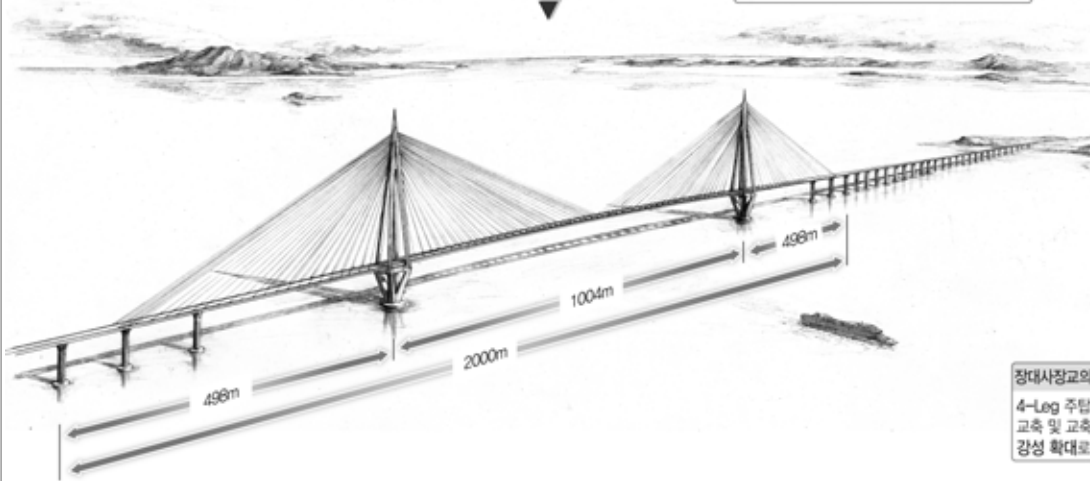
1 : World Best

■ 규모의 차별화를 통한 세계적인 한국 대표 교량의 실현

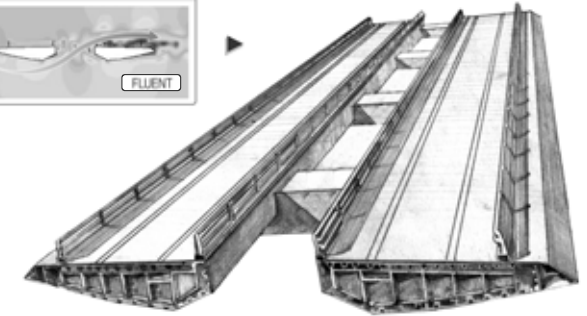
세계1위 주탑 H=310m
세계2위 사장교 L=2,000m
세계3위 사장교주경간 ℓ =1,004m



■ 세계 최고 높이, 세계 최초의 4면 입체 Diamond 주탑



■ 내풍 안정성을 혁신한 Twin Box 거더



World Best 6

		(m)	(m)		
1	Sutong Br.	1,088	2,088	306	A
2	Stonecutter Br.	1,018	1,597	293	
3	Diamond Br.	1,004	2,000	310	4
4	Tatara Br.	890	1,480	220	Y
5	Normandy Br.	856	1,548	203	A
6		800	1,480	225.5	Y

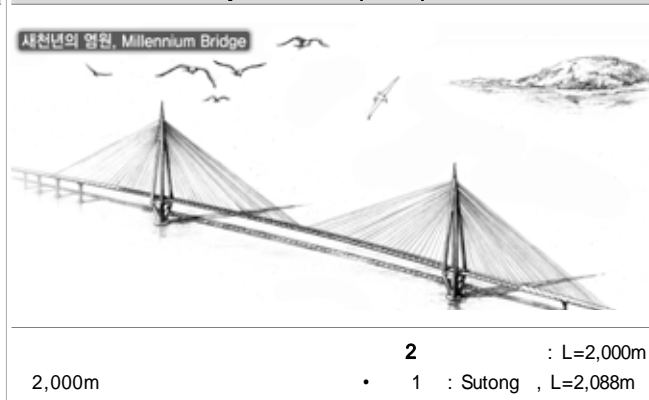
Gatemark ()



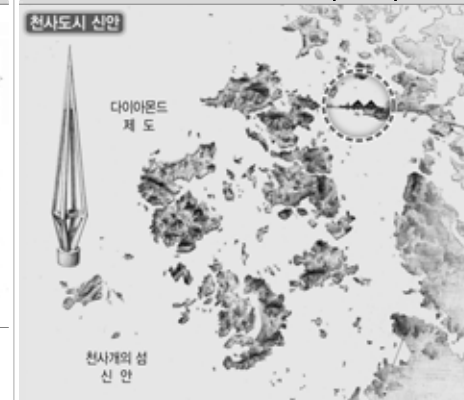
4

1 : H=310m
• Sutong : H=306m

Symbolmark ()



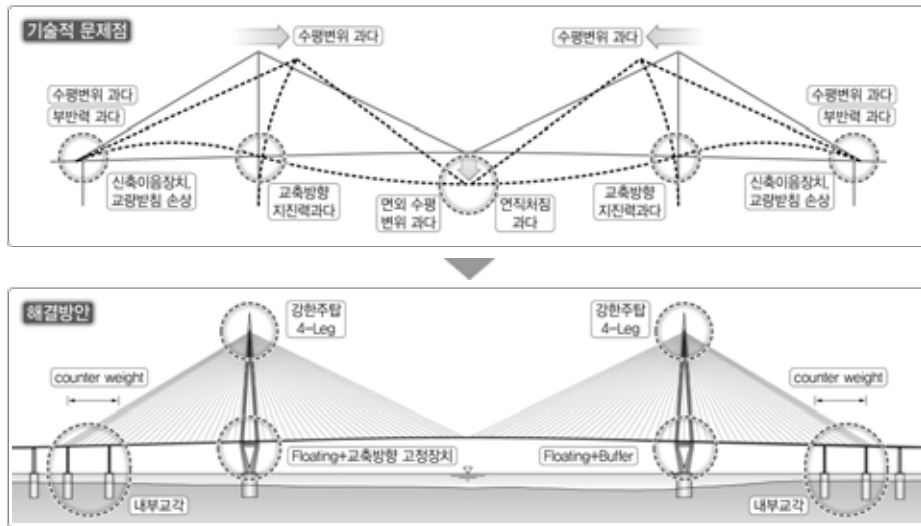
Landmark ()



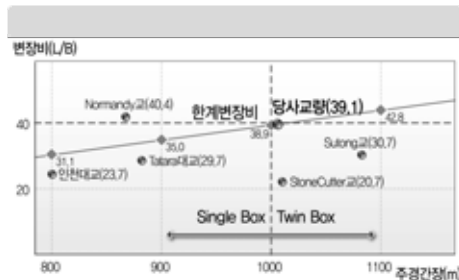
1004
1004m
3 : L=1,004m
• 1 : Sutong , L=1,088m
• 2 : Stonecutter , L=1,018m

2 :

2.1



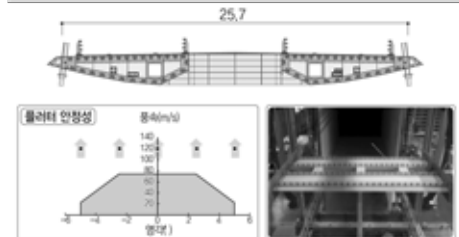
2.2 → Twin Box



$$\bullet \frac{L=1004m}{B=12.5} = 80.3 > 40$$

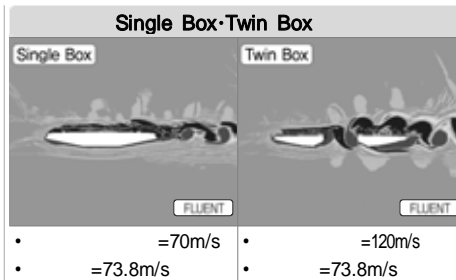
$$\bullet (25.7m) : 39.1$$

2



•Twin Box (120m/s)

•



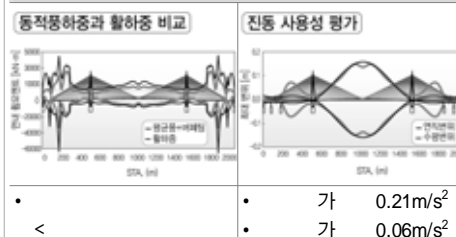
$$\bullet = 70m/s$$

$$\bullet = 73.8m/s$$

$$\bullet = 120m/s$$

$$\bullet = 73.8m/s$$

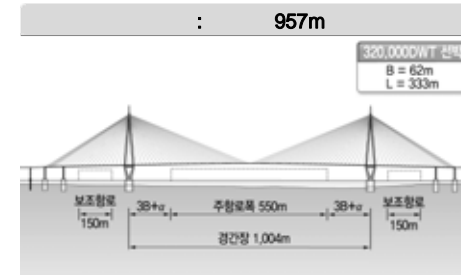
•Twin 가 Single 70%



$$\bullet < \text{가 } 0.21m/s^2$$

$$\bullet \text{가 } 0.06m/s^2$$

2.3 → 1,004m



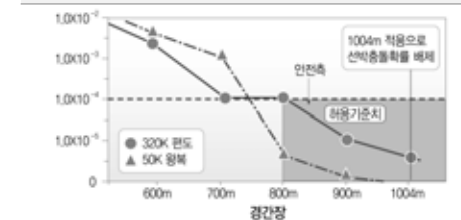
$$\bullet 320,000 DWT = 550m$$

$$\bullet = +6B +$$

$$\bullet = 550 + 6 \times 62 + 35 = 957m$$

$$\bullet \Rightarrow 957m (L=1,004m)$$

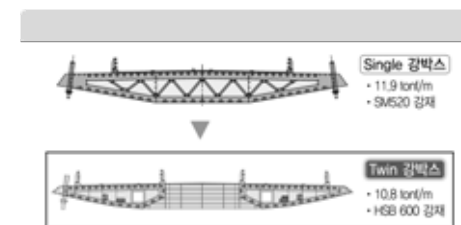
가() : 0.0001/year



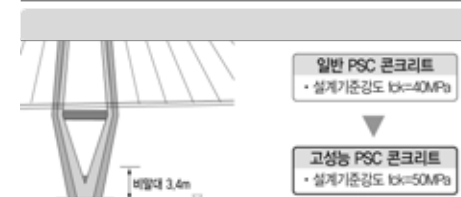
$$\bullet (1 \times 10^{-4}) \text{ 가}$$

$$\bullet 800m (L=1,004m)$$

2.4



•Twin Box HSB 600 → 10%

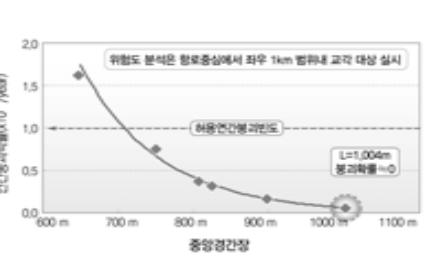


•

•

: 1,000m

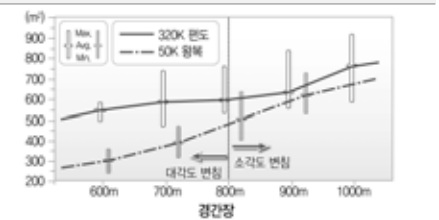
"AASHTO Method 2"



$$\bullet 1,000m$$

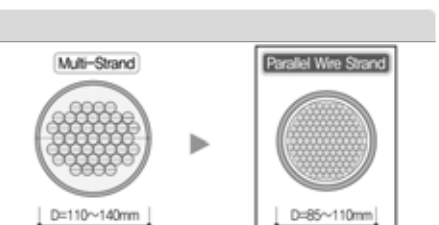
$$\bullet \Rightarrow L=1,004m$$

가() 가()



$$\bullet 800m$$

2.4



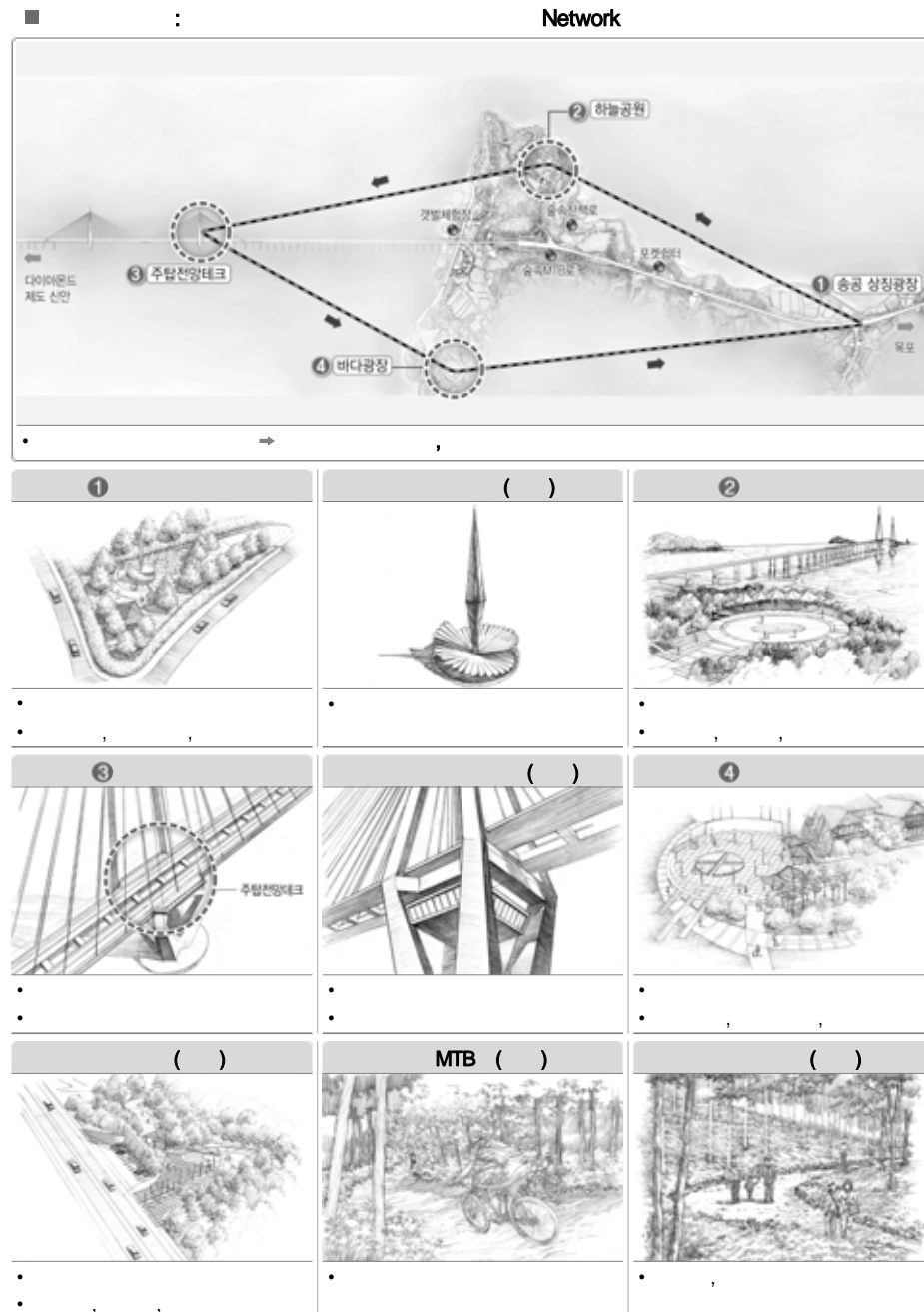
• PWS 1860MPa



•

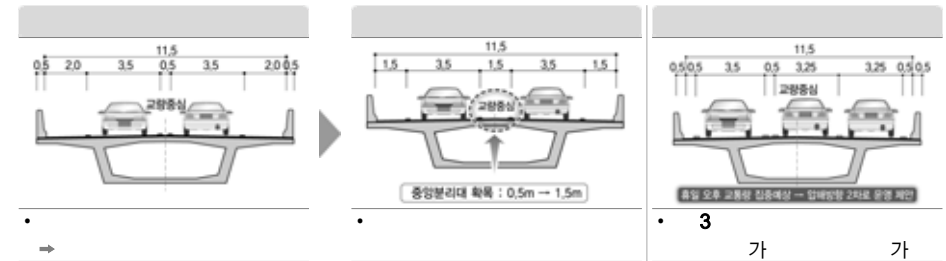
32%

4.2

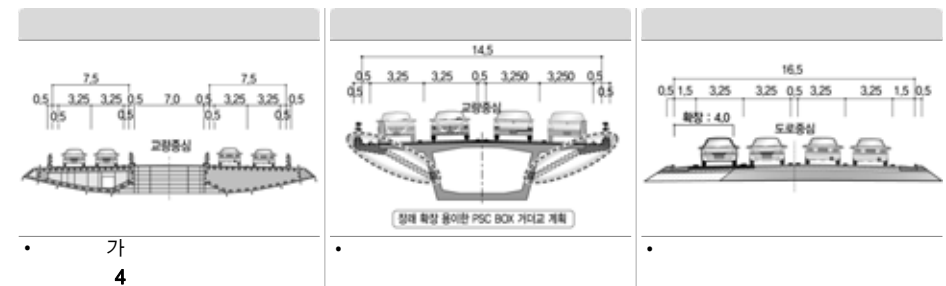


1

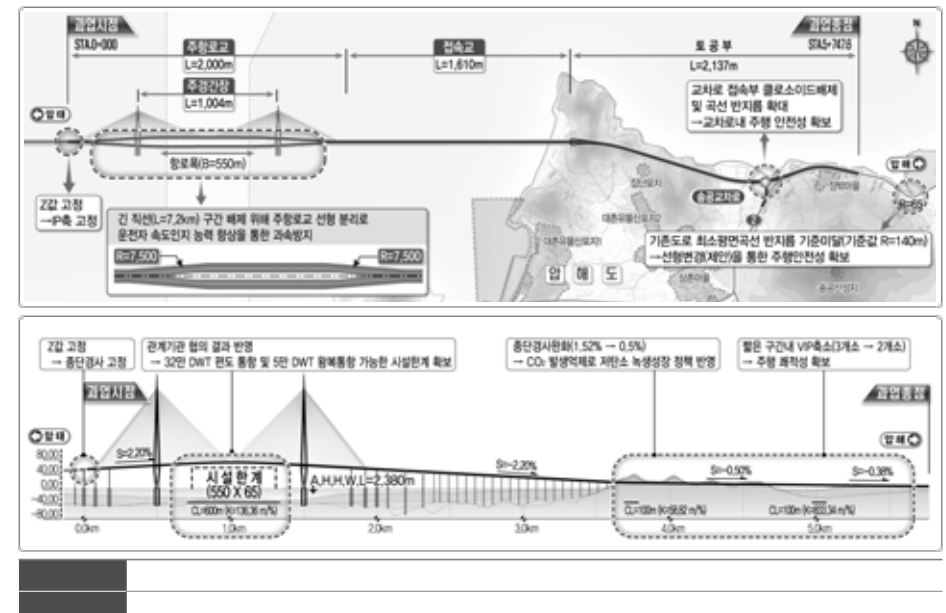
1.1



1.2

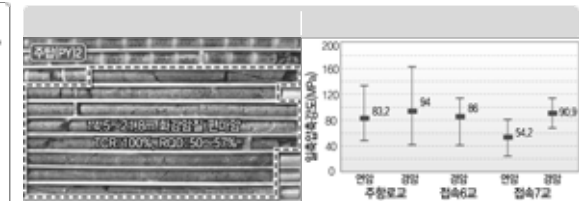
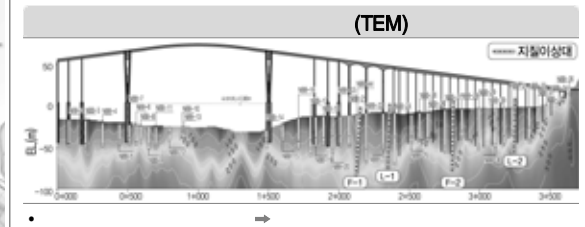
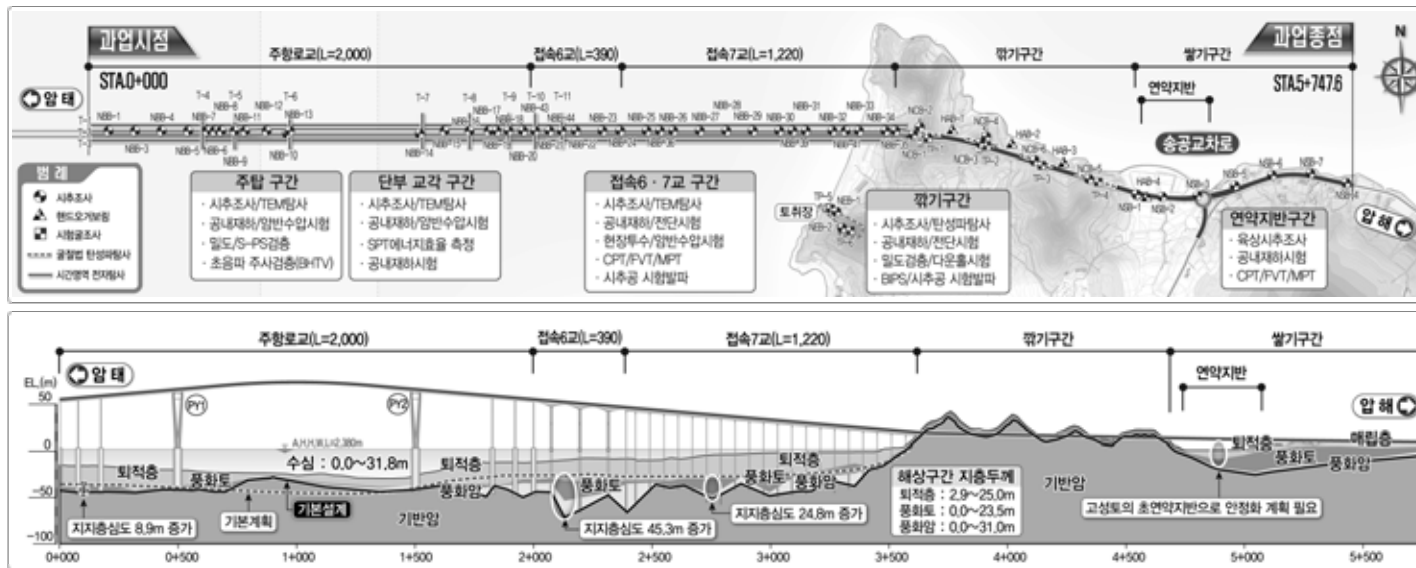


1.3

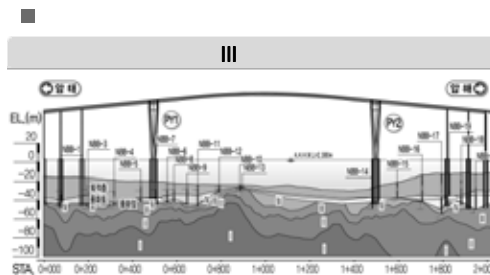


2

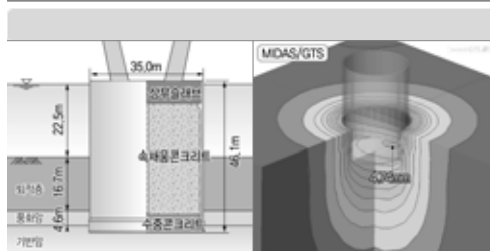
2.1



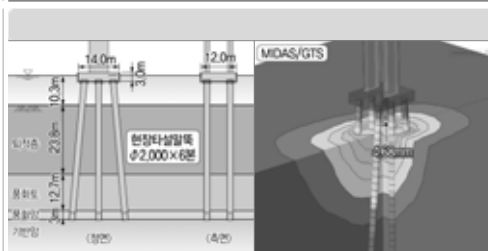
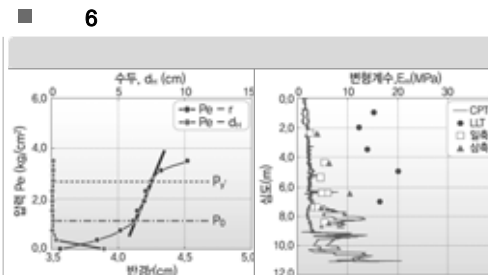
2.2



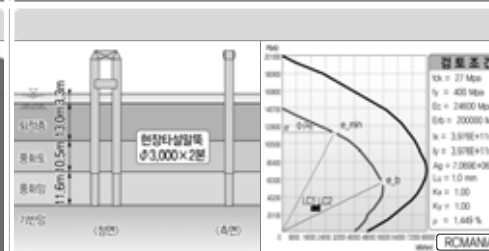
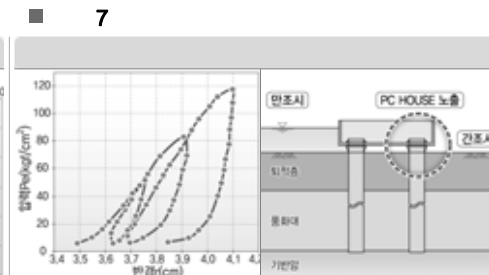
Creep
RMR



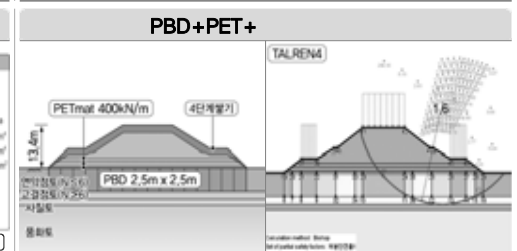
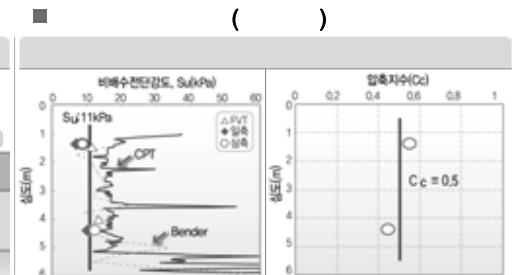
(1004m)
: 4.74mm < : 25.0mm



(ϕ 2,000)
4.68mm < 38mm



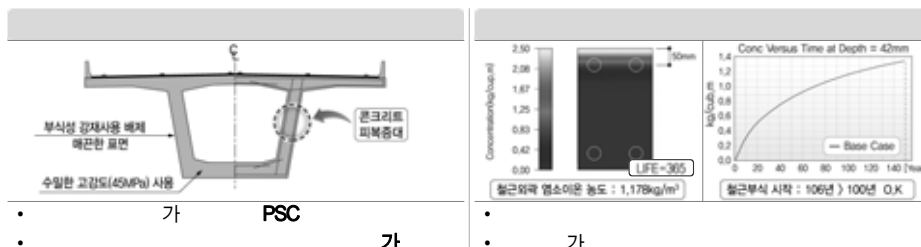
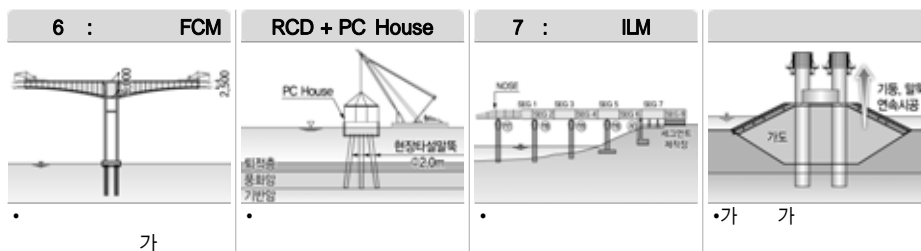
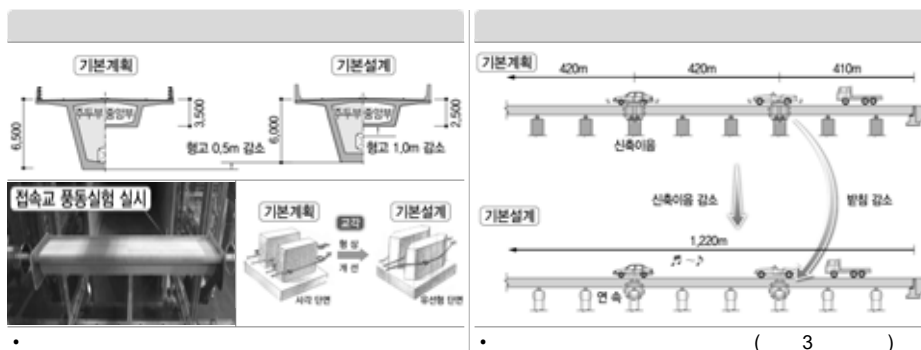
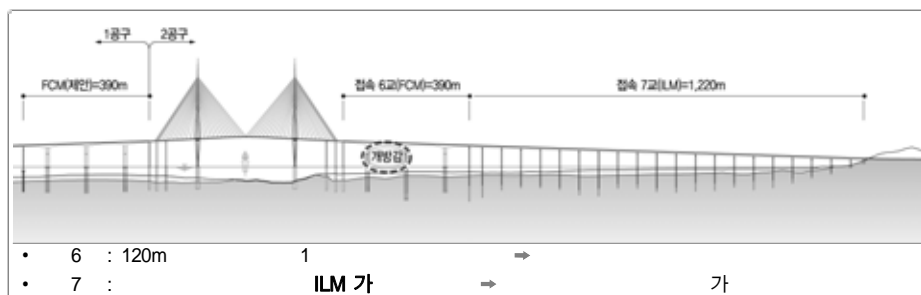
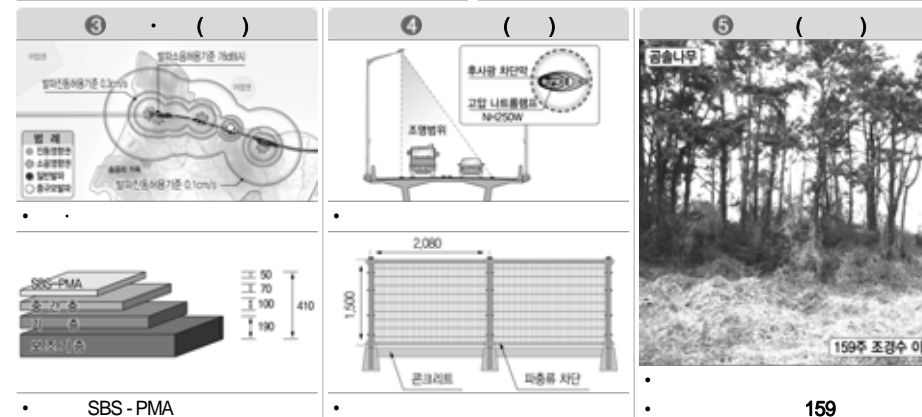
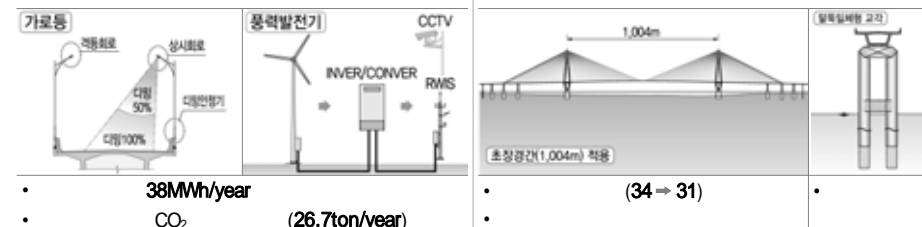
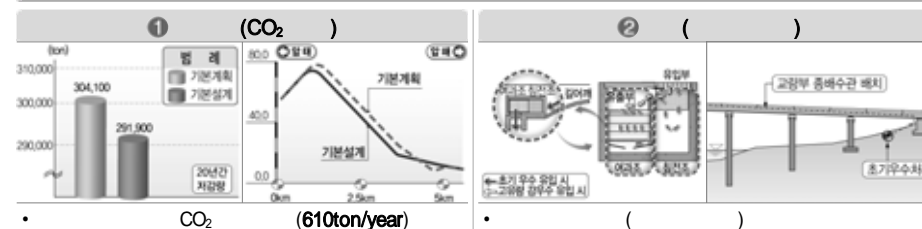
ϕ 3,000
 $\phi P_n = 72.0MN > P_u = 26.6MN$



PBD(2.5x2.5) , PET
 $F_s = 1.6 > F_s = 1.5$

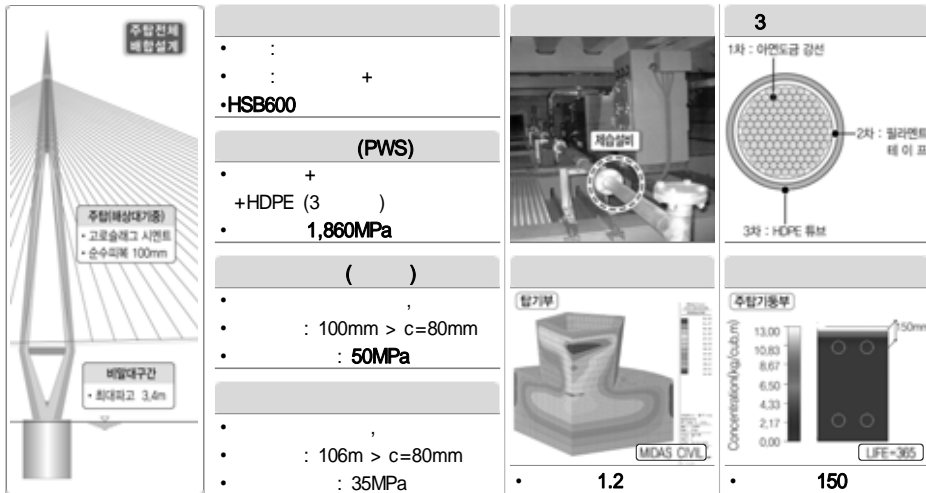
4

1 대기 - 중단선형개선, 에너지저장
2 수질 - 비점 오염원 차단, 교각수 최소화, 부유사 발생 최소화 공법
3 소음, 진동 - 적정 발파계획, 저소음 포장
4 동식물상 - 광해저감, 생태계 유도율타리
5 폐기물 - 공출이식

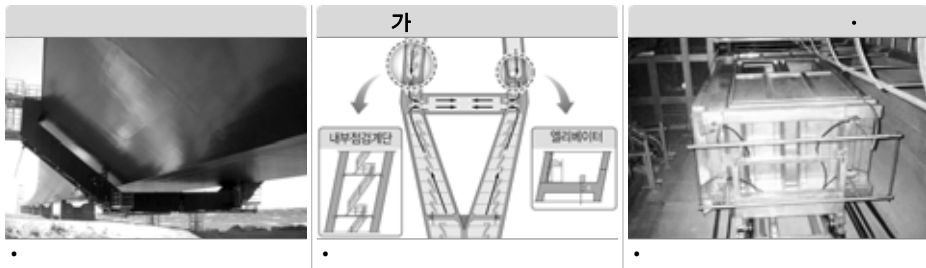


5 : 150

5.1



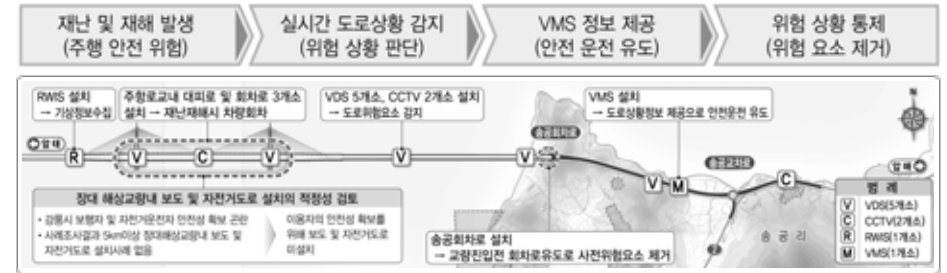
5.2








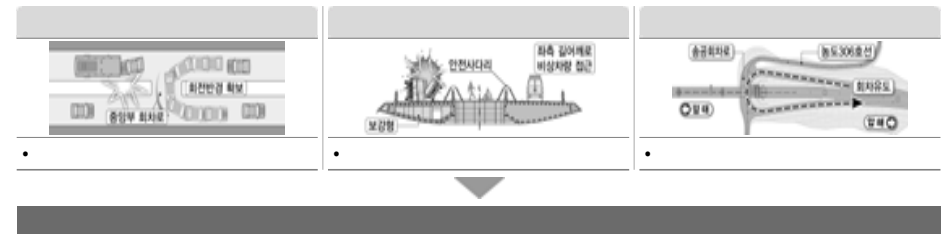
계측 항목 및 수량					
부 재	단위	연서명	계측방법	부착자	문 의 장 소
주 기	①	온 도 계	정 직	PY1.2 주철기둥부	주철기둥부의 온도 변화
	②	열화상 카메라	동 직	PY1.2 상단	열화상 카메라 측정
	③	2축 가속도계	정 직	PY1.2 상단, 접합부	주철부 변위 측정
	④	온 도 계	정 직	슬람강관 1/2 지점	보강재의 온도 변화
	⑤	2축 가속도계	동 직	슬람강관 1/2 지점	보강재의 진동 특성 측정
	⑥	저진계	동 직	슬람강관 1/2 지점	보강재의 저진 특성
보 강 철	⑦	동적변위 측정계	동 직	슬람강관 1/2 지점	보강재의 동적변위 측정
	⑧	열화상 카메라	동 직	슬람강관 1/2 지점	열화상 카메라 측정
	⑨	3축 가속도계	동 직	슬람강관 1/4 지점	보강재의 진동 특성 측정
	⑩	3축 가속도계	동 직	슬람강관 1/4 지점	슬람강관 자체 측정
기 타	⑪	저진계	동 직	PY1.2 기둥부	저진계 의한 진동 특성 측정
	⑫	신속이동 변위계	정 직	P-4 신속이동부	신속이동부의 변위 측정

5.3

■ ITS



RWIS	VMS	CCTV	VDS	
				
<p>• (1)</p>	<p>• (1)</p>	<p>• (4km 2)</p>	<p>• (1km 5)</p>	<p>• (100)</p>



<p>물방울형 신호등 RF/RTS (대기중신호) 도로나 차량 센서 수집된 정보 전송 중앙관리센터</p> <p>운전자에게 정보제공</p>	<p>(3,239m)</p>	<p>()</p>	<p>(1,083m)</p>
<p>① 안개검출 ② 대량행 도로로잡힘 ③ 돌출행 차선오도</p> <p>VMS 도로표지</p>	<p>(418EA)</p>	<p>(120m)</p>	<p>(L=885m)</p>

첫째

: World Best



둘째

:



셋째

:

가

