

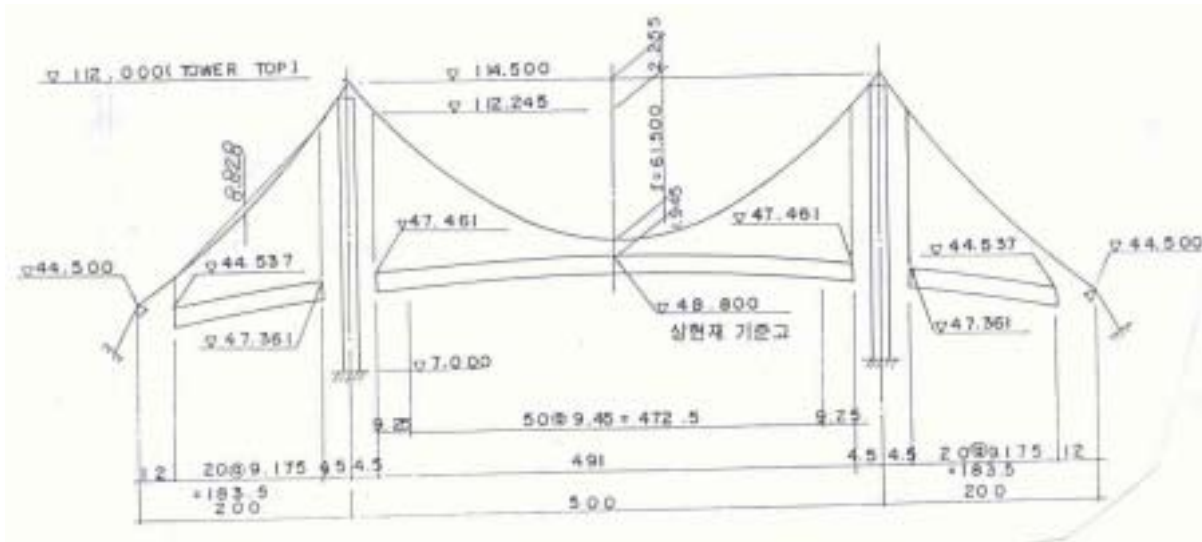
가

權東烈 / ()

1.

500m, 900M, Air Spinning
 가 , 가 , PSC
 가 가

2.



Sag $f/l = 61.5/491 = 1/8$

: 5.0mm

Cable : 37strand/cable × 312wire/strand

Cable : : 0.6006m,

wrapping : 0.6066m

$(0.6006 + 2 \times 0.003\text{mm})$

Cable

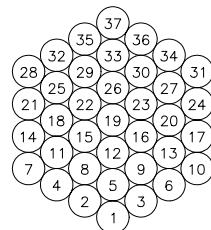
$160\text{kg}/\text{mm}^2$

$6,200\text{kg}/\text{cm}^2$ (2.5, 97%)

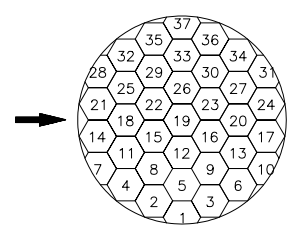
$T_a = 6.2 \times 2,267\text{cm}^2/\text{cable} = 14,055 \text{ t}/\text{cable}$

12,874 t/cable,

가설 중 케이블 형상



완성시 케이블 형상



12,607t/cable.

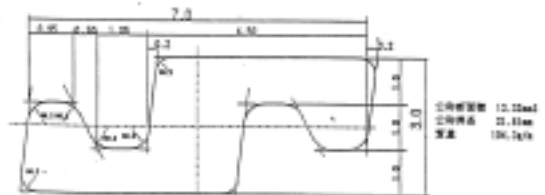
3.

KS D3509 PWR 77B
 160kgf/mm² 1883 blooklyn 110kgf/mm²
 160kgf/mm² 200kgf/mm² 180kgf/mm²
 가
 ()
 , Reeling
 Saddle Strand Shoe , 1Strand 가

	mm	5.00
Strand		312
Strand	cm ²	61.26
Cable Strand		37
Cable		11544
Cable	m ²	0.2267
Cable	t/m	1.7796
Cable	t/m ²	2.03E+07
	kg/mm ²	160

			1
Rope		CFRC	
Rope		6×WS(41)+7×S(19)	
Rope	mm	61.0	67.0
Rope	m ²	0.001976	0.002384
Rope	t/m	0.0163	0.0199
Rope	t/m ²	1.40E+07	1.40E+07
Hanger		4	4
Hanger	m ²	0.007904	0.009536
	(1) /	258	310

JIS G 3505() SWRM 6 ~
 12 , 55kg/mm²
 1.5% 293kg (2.5)



가

종 류	구 성	지름 (mm)	인장강도 (ton)	단위중량 (kg/m)	단면적 (mm ²)	탄성계수 (t/m ²)
Catwalk Rope	Stranded Rope (7×19)	46.0	143	8.37	1010	1.4E+07
Setback Rope	Stranded Rope (7×37)	64.0	254	16.10	1940	1.4E+07
Hauling Rope	IWRC Wire Rope 6×Fi(29)	40.0	110	7.04	800	1.1E+07
Tramy Rope	IWRC Wire Rope 6×Fi(29)	47.5	156	9.93	1120	1.1E+07
Pilot Rope	IWRC Wire Rope 6×Fi(29)	16.0	18	1.13	130	1.1E+07

4. 가

가. Air Spinning 가

가 Air Spinning 가

Air Spinning 가 Old A/S Method New A/S Method

Old A/S Method Free Hanging Method Sag Control Method , 가 wire

Sag 가 ,

New A/S Method Tension Control Method , Free Hanging

가 , Cable Former , Cable Former

가 0 , 가

가

(semi-freehanging)

20% 가 ,

Spread

(80%)

Tension Control Method

Free Hanging 93kg, 81kg ,

가 ,

(free hanging) 80% 70kg

Anchor Frame , PSC

PSC



Anchor Frame



PSC

5. 가

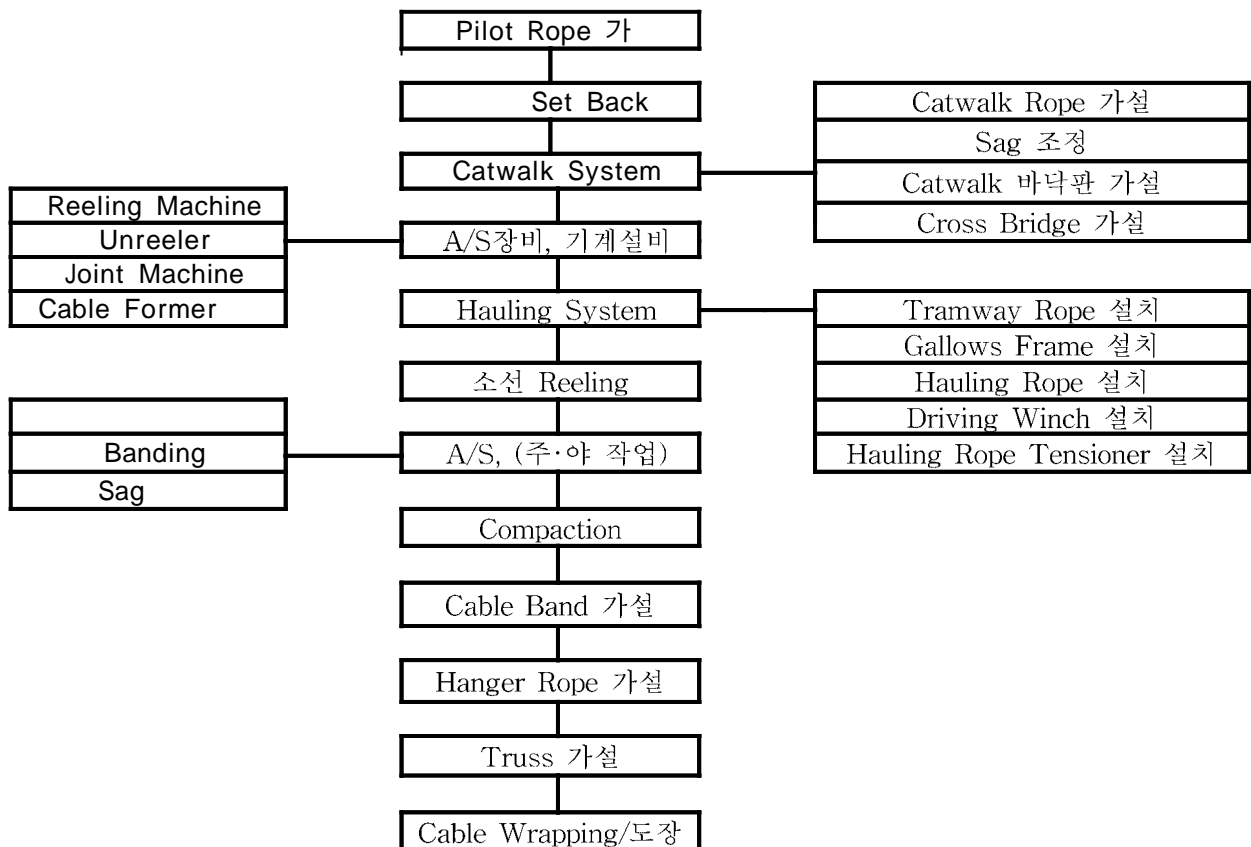
가. 가

가

1 가 , 37 가 ,
IP, 20

가

		1 Strand	37 Strand	()
	m	500.8321	500.8291	500.0090
(H)	ton	25.2764	935.2897	9013.9900
()	ton	28.9401	1070.8203	10267.4800



가

1) Set Back

가

가

가

가

가

가

412mm, splay saddle 55mm

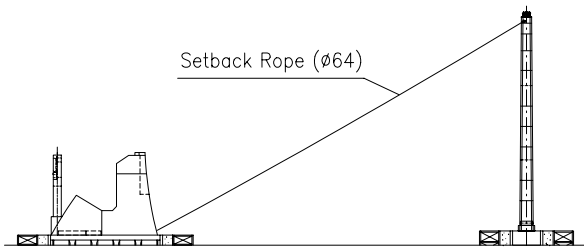
Setback Rope

가

가 (A/S)

4

103ton/column



2) 가

Catwalk Main Cable가 , Cable Band가 , Hanger Rope 가

Strand

가

가

1

가

가

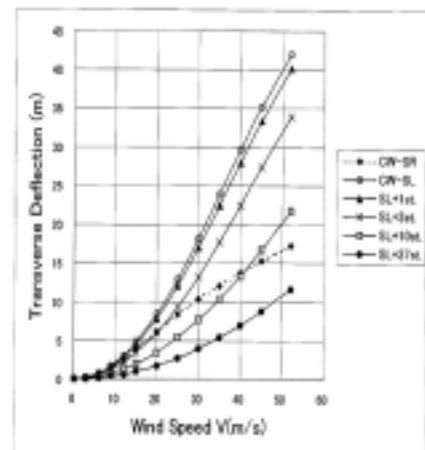
가

10m/s

가

16m/s

가

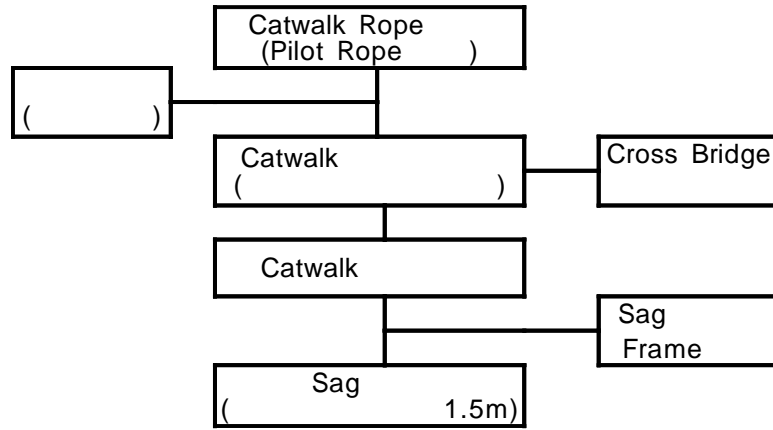


가

가

가

가



가

가

1.5m

가

Free Hanging

가

3)

가

1

가

가

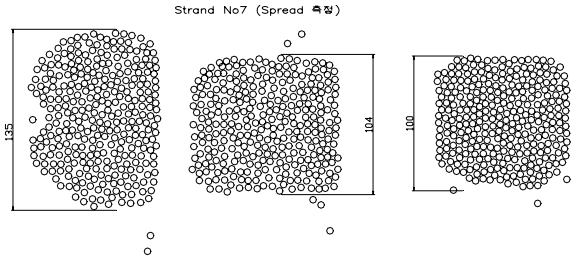
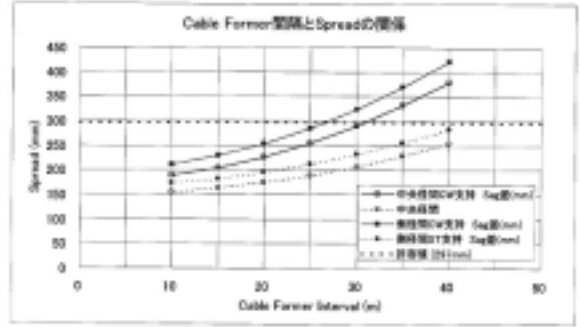


25M, 30M

1 Hanging SPREAD

가 3 270mm 125mm

Free



4) Gallows Frame

Hauling Rope가 가 Roller Frame, Wire 40m



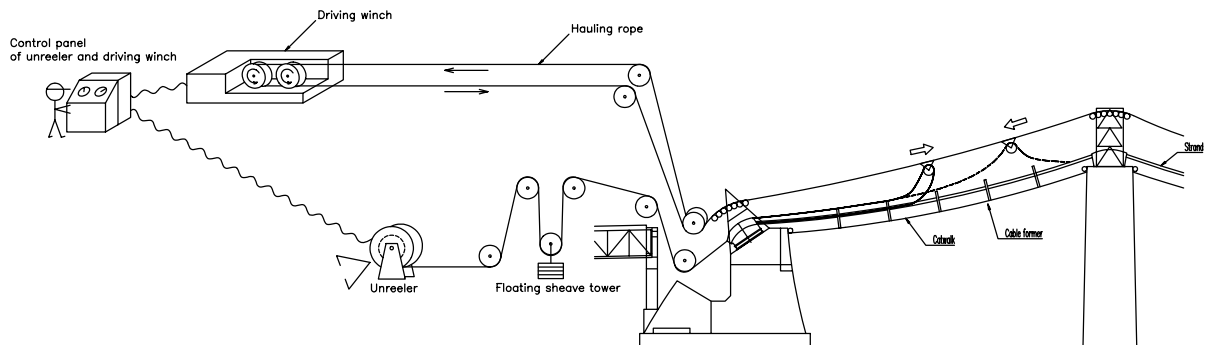
5) TRAMMWAY ROPE

Tramway Rope Air Spinning, Cable Band, Hanger Rope, Air Spinning, Hauling Rope Gallows Frame

6) Hauling System

Winch)

(Driving



가 (Air Spinning)

1)

, 1 ~ 2ton Coil
 가 가
 A/S 6ton Reel
 Drum



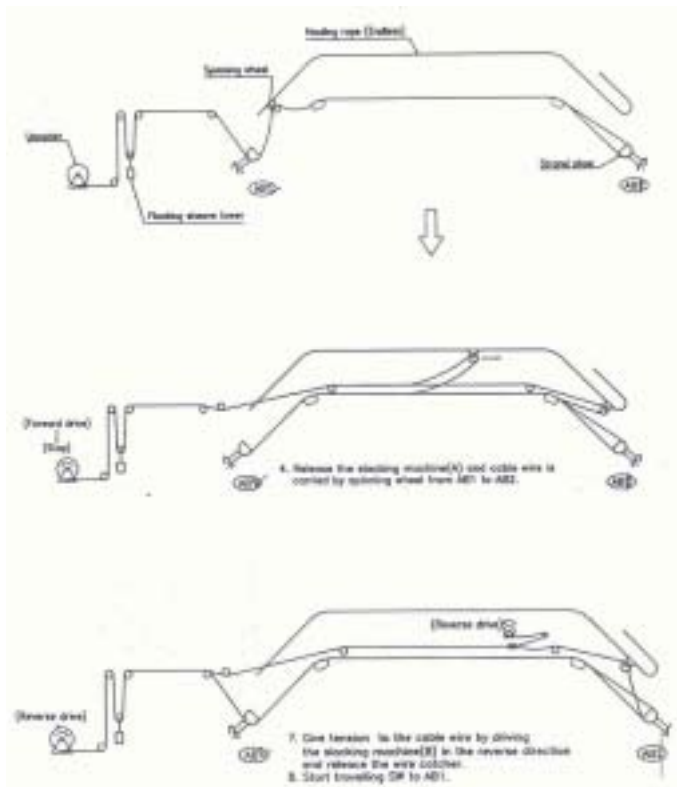
2)

Floating Sheave Tower , 7m

Air Spinning [Layout of Air Spinning Work]

3)

가 Hauling System 2Loop 가
 가 가
 Hauling System 2 2 가 가 , 1
 16 가 . Air Spinning

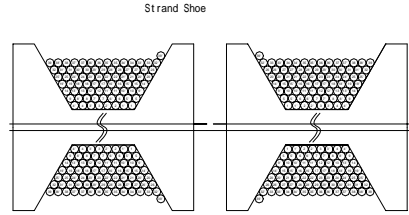
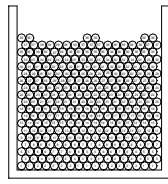


- ▶ : 240m/min (:30m/min)
- ▶ 1 : 30 /1
- ▶ 1Strand : 1 /1Strand (8 ×39)



▶ 1Strand Saddle :
 $(17 \times 18) + 6$

▶ 1Strand Strand Shoe :
 $[(8 \times 14) \times 8] + 1$

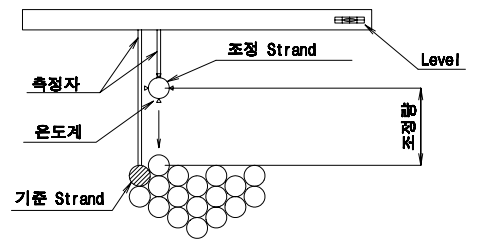
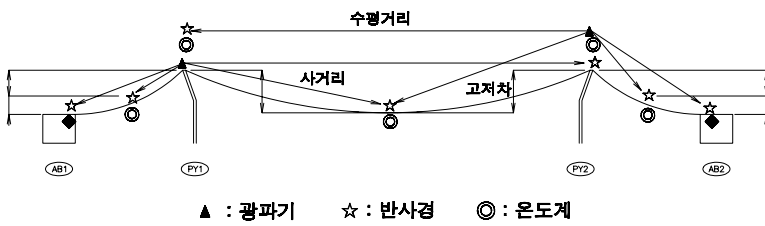


4)
 가

3

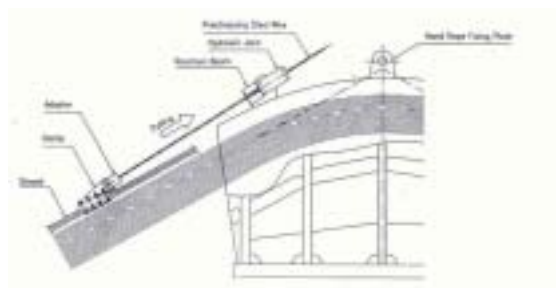
가

3



가

가



5) Anchor span

가

가 1 37 가
가

25.4t/strand

4 1



6) SQUEEZING(COMPACTON)

가

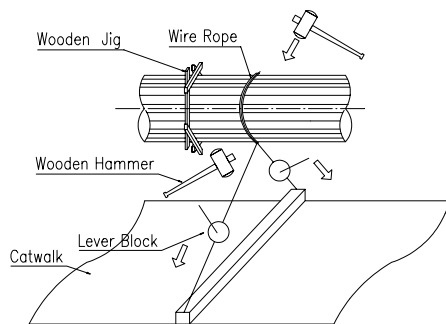
Squeezing

20%, 18% 가 SEETING

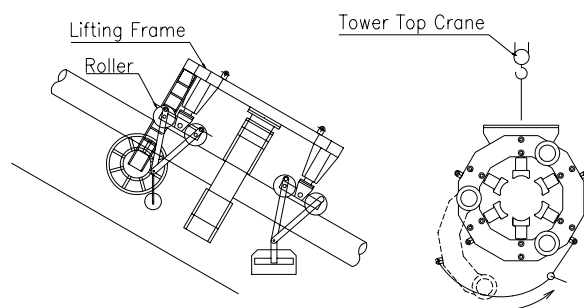
가

가

22%



▶ Pre Compaction (인력)



▶ Main Compaction (기계)

가

Precompaction

, Gauge Wire

Free Hanging 가

Marking

10m

가

가

가

Band 가 Tramway Rope

Carrier

Band 가 Bolt Tensioner

75% 74



Hanger Rope 가

Cable Wire

Band Bolt 가

가

가

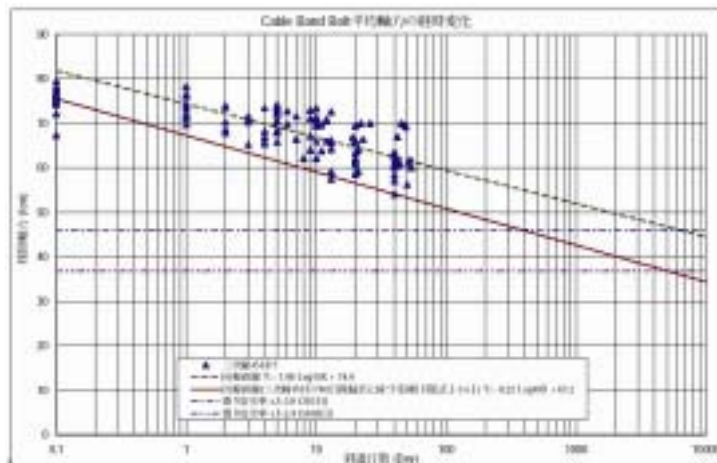
1

가



3

1



가

가

가 가

가

2

가 가

가

가 가

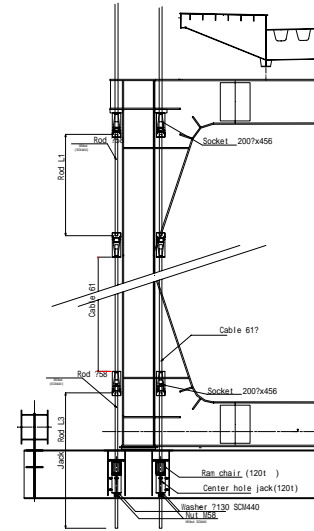
가 가

가

1

3cm

가



Center Hole Jack

4mm

S

가 가
250Kg 가

290kg

