GROUPE GICA

GROUPE INDUSTRIEL DES CIMENTS D'ALGERIE

ENTREPRISE DES CIMENTS ET DERIVES D'ECH-CHELIFF

CIMENTERIE DE CHLEF

LIGNE DE PRODUCTION DE 6000 t/j DE CLINKER

IND REV	NOMBRE DE NUMBER OF △	DATE	DESSINE DRAWN	VERIFIE CHECKED	SIGNE SIGNED	MODIFICATIONS
G						
F						
E	5	08/10/2014	K. F	R. B	R. B	POUR EXECUTION STAIR CONNECTION ON CONCRETE / NEW PRICE CODE: BUP
D	6	15/09/2014	K. F	R. B	R. B	POUR EXECUTION HANDRAILS ON STAIRS / HOOP LADDER
C	4	01/08/2014	KF	RB	RB	POUR EXECUTION HILTI HST & SAFETY GATE
B		30/06/2014	KF	RB	RB	POUR EXECUTION HANDRAILS & STAIRS, HOOP LADER (9m), ANCHOR BOLTS
A		28/11/2012	AN	AN	AN	FIRST ISSUE

REPERE ATELIER LAYOUT MARK

ATELIER / BUILDING

ALL BUILDINGS
TOUS LES BATIMENTS

GROUPE / ITEM

EQUIPEMENT / EQUIPMENT

ECHELLE / SCALE

TITRE DU PLAN / DRAWING TITLE

STEEL STRUCTURE STANDARDS / STANDARDS CHARPENTE METALLIQUE

INSERTS, HANDRAILS, STAIRS & LADDERS

INSERTS, GARDE-CORPS, ESCALIERS & ECHELLES A CRINOLINE

fives fcb

MATIERE / MATERIAL:	MASSE / MASS:	FORMAT: A4	

Fives FCB
50 rue de Ticléni - BP 376
59666 VILLENEUVE D'ASCQ Cedex FRANCE
Tél : 33 (0)3 20 43 77 77 Fax : 33 (0)3 20 43 75 75
E-mail : fivesfcb@fivesgroup.com www.fivesgroup.com

REFERENCE		IND
NUMERO DU PLAN DRAWING NUMBER	CHL1S2001A01	E

INDEX / INDEXE

GENERAL NOTES / NOTES GENERALES

REFERENCE DRAWINGS / PLANS DE REFERENCE

CIVIL WORKS DRAWINGS / PLANS DE GENIE CIVIL
CHL1 CXX XX XXX - TITLE

STEEL STRUCTURE DRAWINGS / PLANS DE CHARPENTE METALLIQUE
CHL1 SXX XX XXX - TITLE

GENERAL ARRANGEMENT DRAWINGS / PLANS GUIDE
CHL1 GXX XX XXX - TITLE

GENERAL NOTE / NOTE GENERALE

NOTE:

- DIMENSIONS ARE IN MILLIMETERS / LES DIMENSIONS DU PLAN SONT EN MILLIMETRES
- LEVELS ARE IN METERS / LES NIVEAUX INDIQUES SONT EN METRES
- ANY CHANGE ON SECTION OR DIMENSIONS OF BEAMS, PLATES, ETC SHALL BE APPROVED BY FIVES FCB BEFORE FABRICATION
  / TOUTE MODIFICATION SUR LA SECTION OU DIMENSION DE TOUT ELEMENT DOIT ETRE APPROUVEE PAR FIVES FCB AVANT FABRICATION
- DO NOT MEASURE ON DRAWING, USE ONLY SPECIFIED MEASURES /
  / NE PAS MESURER SUR LE PLAN. N'UTILISEZ QUE LES COTES INDIQUEES

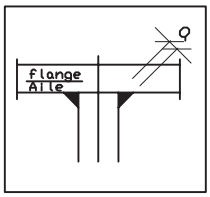
-Steel quality for profiles and plates: S235 JR
Nuance de l'acier pour les profiles et les plats: S235 JR

-Steel quality for tubes: TU 37B (S235 JR)
Nuance de l'acier pour les tubes: TU 37B (S235 JR)

-Bolts - Grade 8.8 / Boulons classe 8.8
- One washer / une rondelle
- Holes Ø bolts +2mm except otherwise noted
Trous (d0) =Ø boulons + 2mm sauf indication contraire

- Minimum weld, not indicated on drawing, a=4mm
soudure minimum non indiqué sur les plans a=4mm

- WELDED SECTIONS / DETAILS SOUDURE



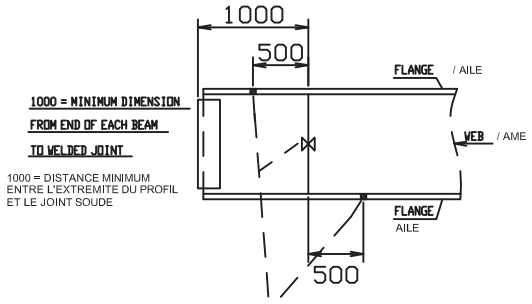
e: Thickness of steel mm — épaisseur mini. (mm)	a: Useful filet weld (mm) — a: épaisseur du cordon de soudure. (mm)
a = 0,7 * e	a = 0,7 * épaisseur mini
6	4
8	5
10	7
12	8
14	9
16	11

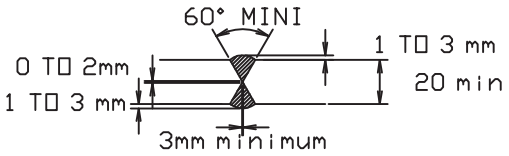
- ABBREVIATIONS

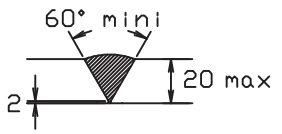
FFL: FINISH FLOOR LEVEL / Niv. SOL FINIS
TOS: TOP OF STEEL / Niv. DESSUS FER
BOS: BOTTOM OF STEEL / Niv. DESSOUS FER
TOG= TOP OF GRATING / Niv. DESSUS CAILLEBOTIS
TOC= TOP OF CONCRETE / NIV. DESSUS BETON
TOCP= TOP OF CHECKERED PLATE / Niv. DESSUS TOLE LARMEE

- NOTCHING OF BEAM - - CHANFREINAGE des poutres -

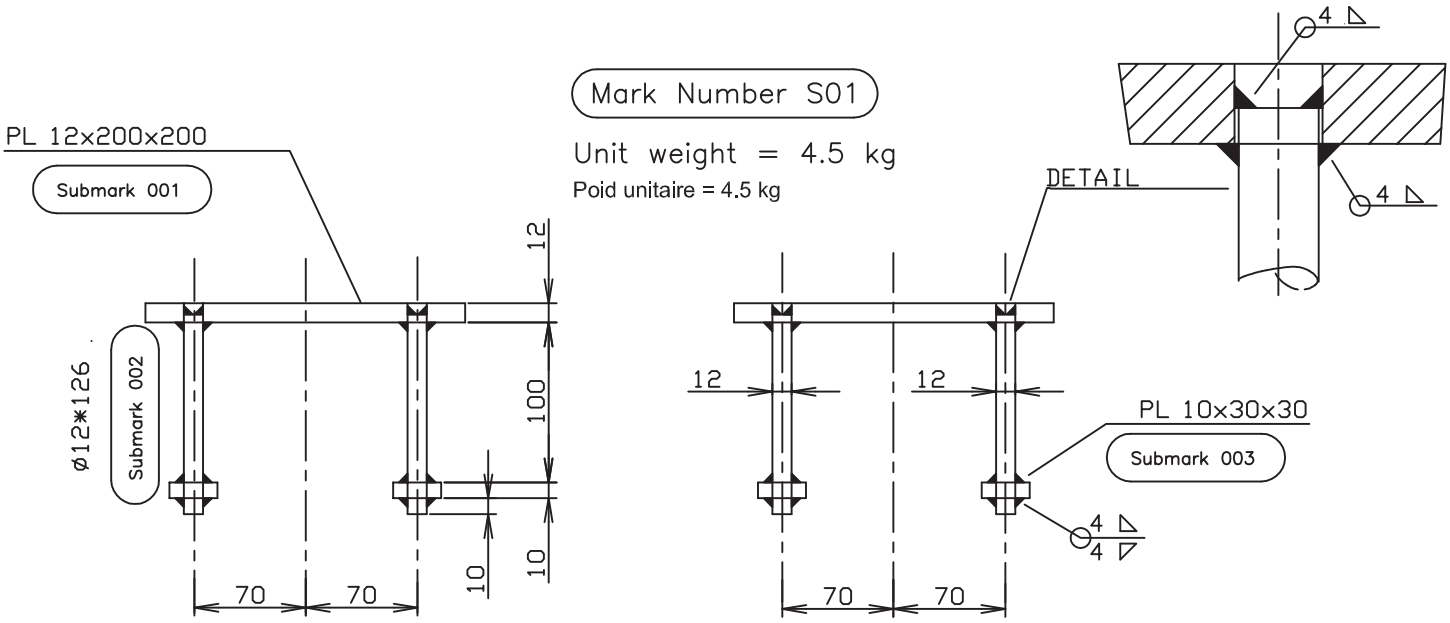
- NOTES

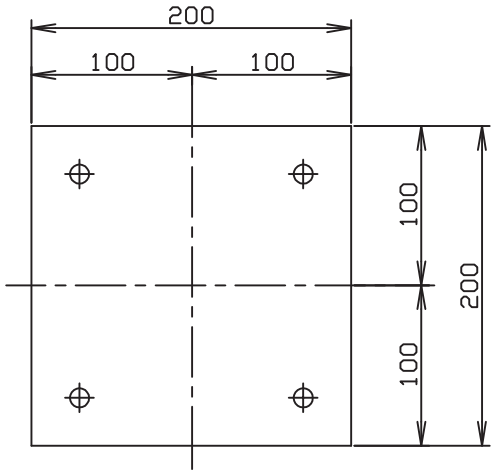






THIS INFORMATION MUST BE AVAILABLE ON EACH GA STEEL STRUCTURE DRAWING
CETTE INFORMATION DOIT APPARAITRE SUR TOUS LES PLANS DE CHARPENTE METALLIQUE





INSERTS ARE DELIVERED
TO SITE NON-PAINTED
For direct incorporation into
the concrete works

INSERTS LIVRES
NON-PEINT
POUR INCORPORATION
AU GENIE CIVIL

TYPE OF STEEL E24.2 (FE360/ST37.2 or equiv) NUANCE DE L'ACIER E24.2 (FE360/ST37.2 or equiv)		
TENSION ONLY CHARGES NORMALES UNIQUEMENT	SHEAR ONLY CISAILLEMENT UNIQUEMENT	TENSION + SHEAR CHARGES NORMALES + CISAILLEMENT
85 kN	10 kN	41 kN 10 kN

The loads indicated in the table are factored.

fc28 = 24 Mpa (characteristic nominal strength on cube 150x150x150 mm)

Inserts embedded in reinforced concrete.

Les charges indiqués dans le tableau sont factorisées

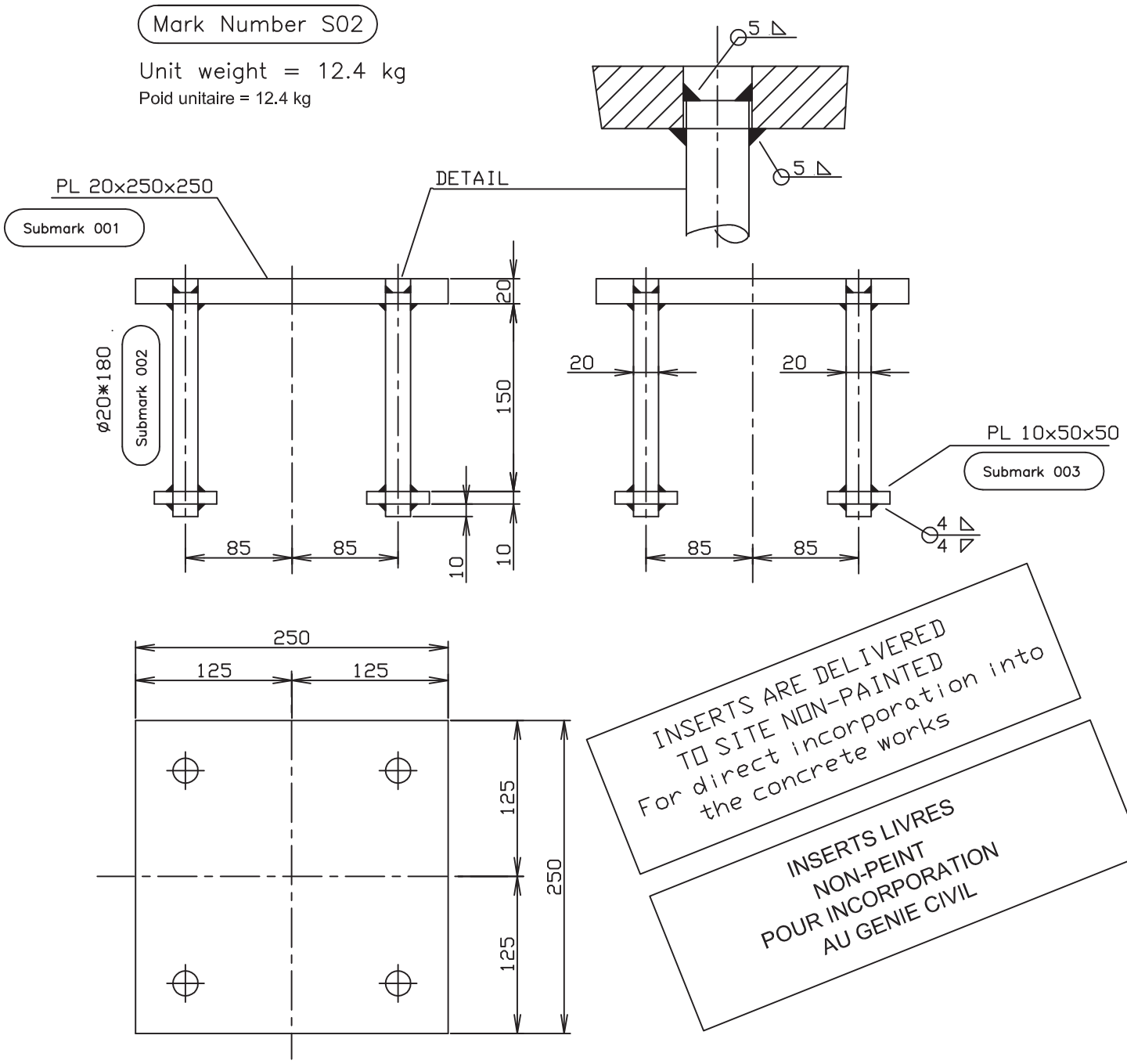
fc28 = 24 Mpa (resistance caractéristique pour un cube de 150x150x150 mm)

Inserts coulés dans la masse (béton)

Mark Number S02

Unit weight = 12.4 kg

Poid unitaire = 12.4 kg



INSERTS ARE DELIVERED
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INSERTS LIVRES
NON-PEINT
POUR INCORPORATION
AU GENIE CIVIL

TYPE OF STEEL E24.2 (FE360/ST37.2 or equiv) NUANCE DE L'ACIER E24.2 (FE360/ST37.2 or equiv)		
TENSION ONLY CHARGES NORMALES UNIQUEMENT	SHEAR ONLY CISAILLEMENT UNIQUEMENT	TENSION + SHEAR CHARGES NORMALES + CISAILLEMENT
235 kN	28 kN	105 kN 28 kN

The loads indicated in the table are factored.

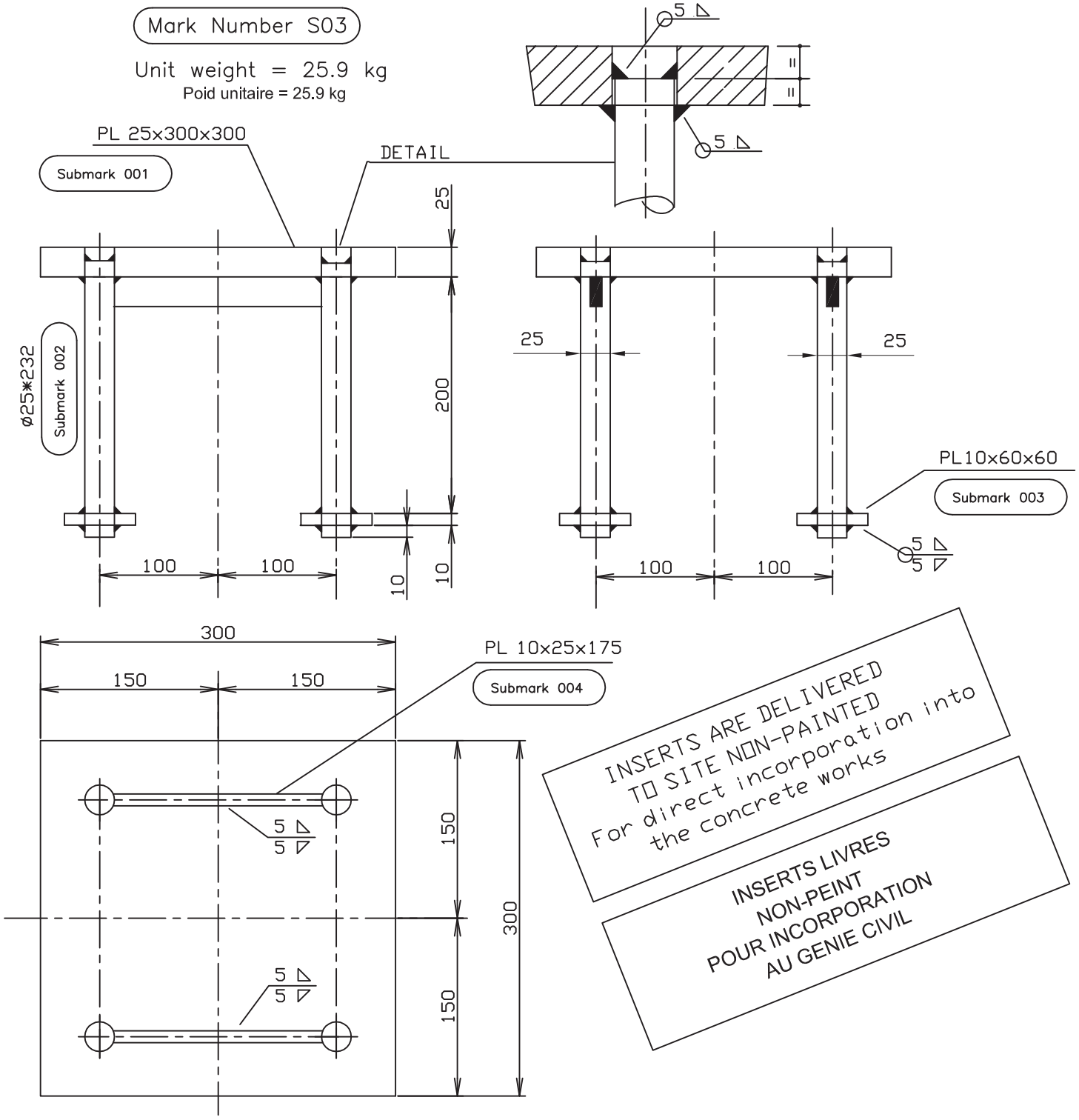
fc28 = 24 Mpa (characteristic nominal strength on cube 150x150x150 mm)

Inserts embedded in reinforced concrete.

Les charges indiqués dans le tableau sont factorisées

fc28 = 24 Mpa (resistance caractéristique pour un cube de 150x150x150 mm)

Inserts coulés dans la masse (béton)



TYPE OF STEEL E24.2 (FE360/ST37.2 or equiv)

NUANCE DE L'ACIER E24.2 (FE360/ST37.2 or equiv)

TENSION ONLY CHARGES NORMALES UNIQUEMENT	SHEAR ONLY CISAILLEMENT UNIQUEMENT	TENSION + SHEAR CHARGES NORMALES + CISAILLEMENT
340 kN	81 kN	340 kN 81 kN

Les charges indiqués dans le tableau sont factorisées

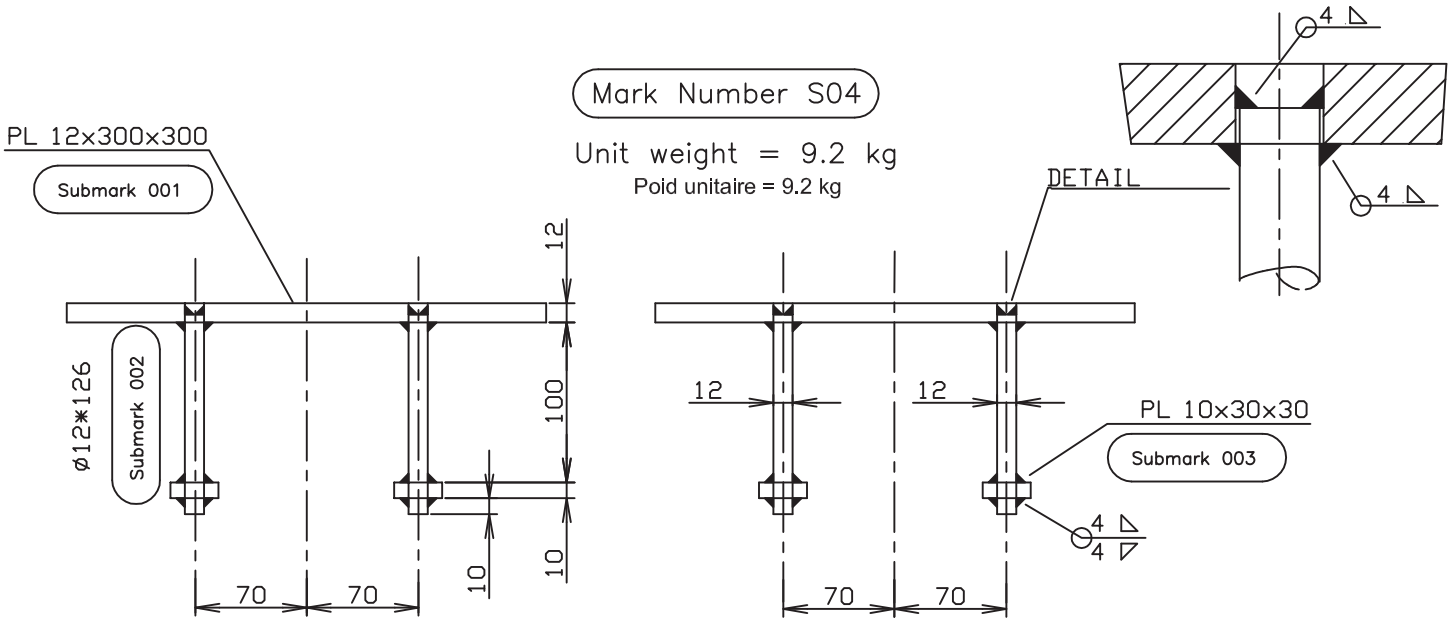
fc28 = 24 Mpa (resistance caractéristique pour cube 150x150x150 mm)

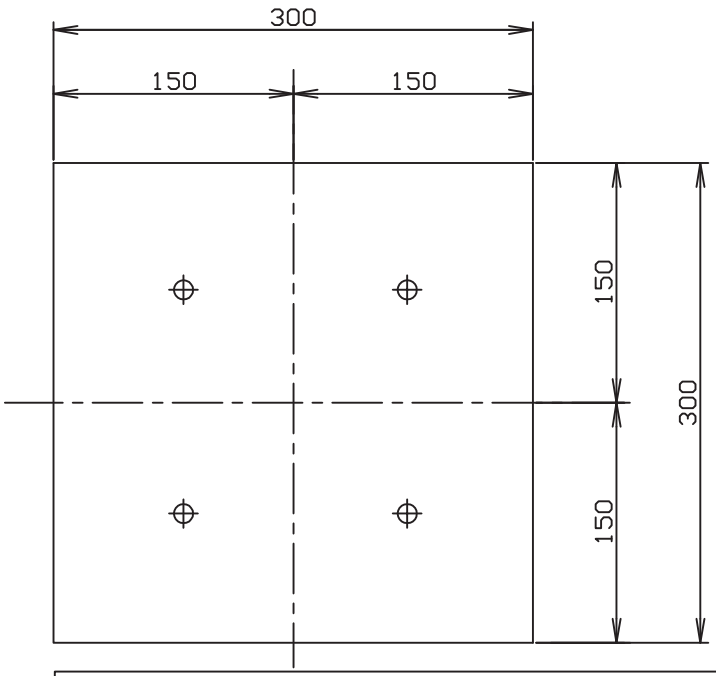
Inserts coulés dans la masse (béton)

The loads indicated in the table are factored.

fc28 = 24 Mpa (characteristic nominal strength on cube 150x150x150 mm)

Inserts embedded in reinforced concrete.





INSERTS ARE DELIVERED TO SITE NON-PAINTED For direct incorporation into the concrete works

INSERTS LIVRES NON-PEINT POUR INCORPORATION AU GENIE CIVIL

NUANCE DE L'ACIER E24.2 (FE360/ST37.2 or equiv)		
TENSION ONLY CHARGES NORMALES UNIQUEMENT	SHEAR ONLY CISAILLEMENT UNIQUEMENT	TENSION + SHEAR CHARGES NORMALES + CISAILLEMENT
85 kN	10 kN	41 kN 10 kN

The loads indicated in the table are factored.

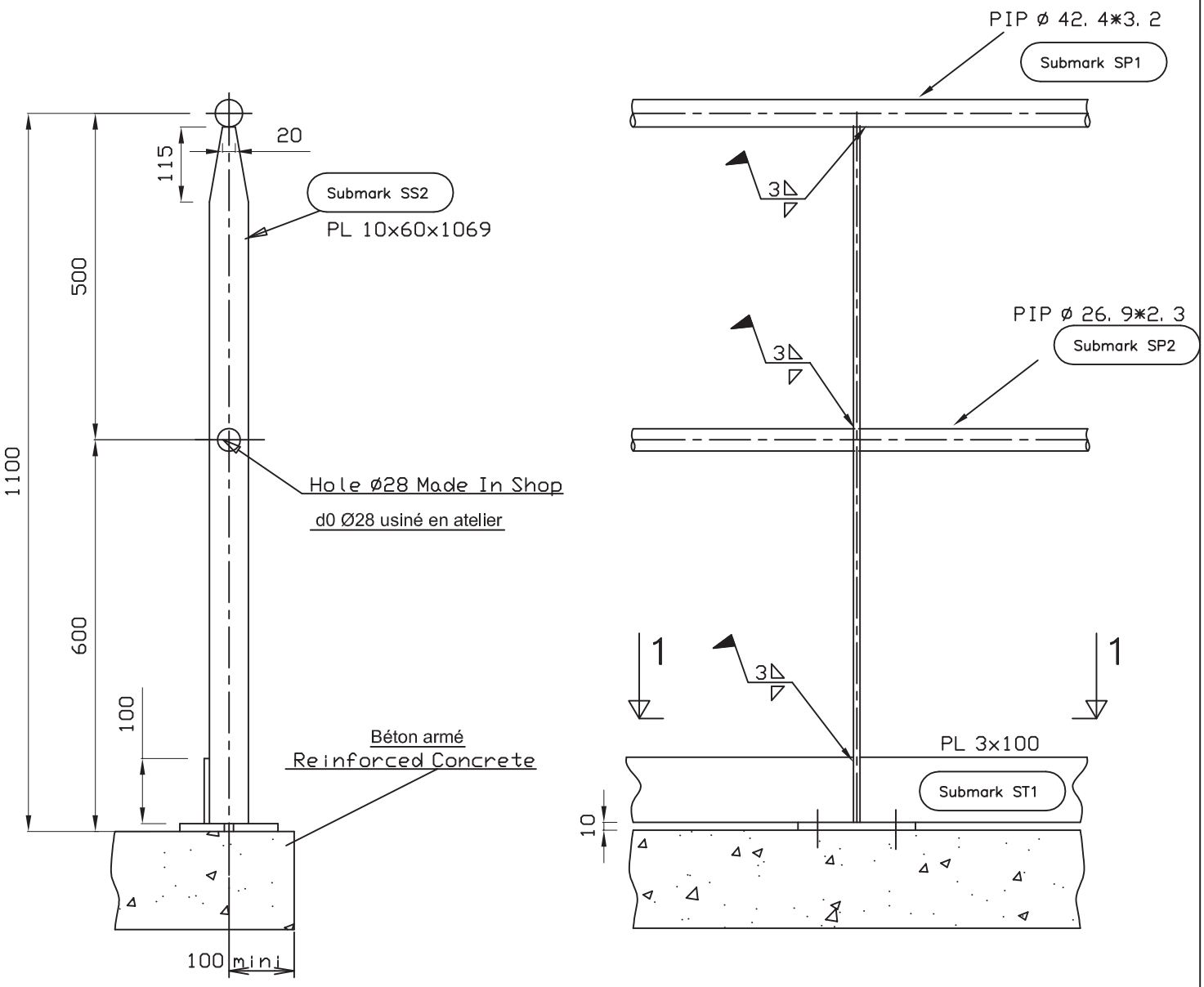
fc28 = 24 Mpa (characteristic nominal strength on cube 150x150x150 mm)

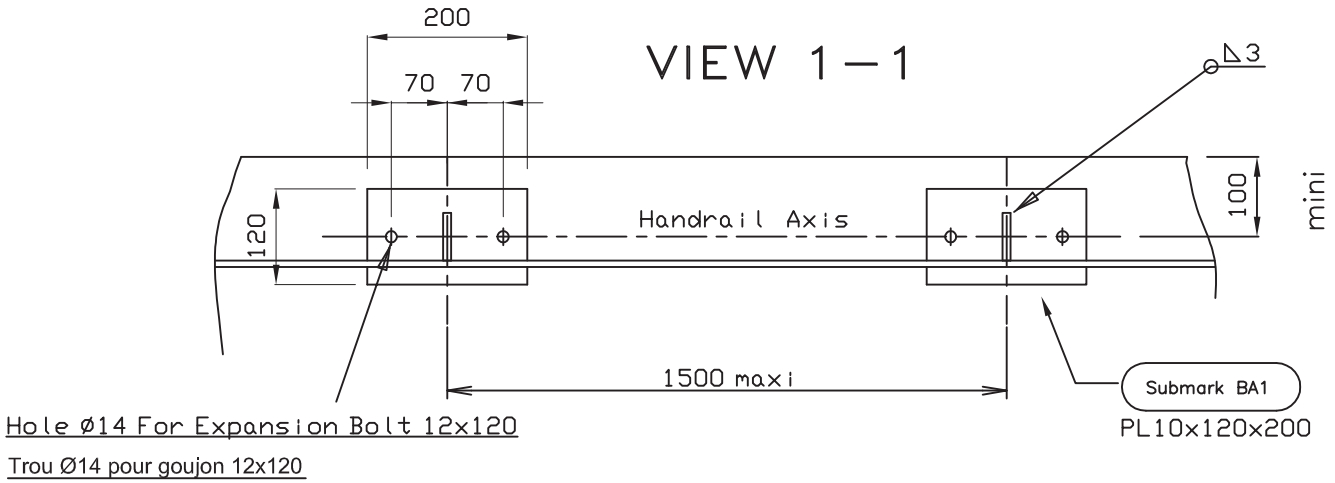
Inserts embedded in reinforced concrete.

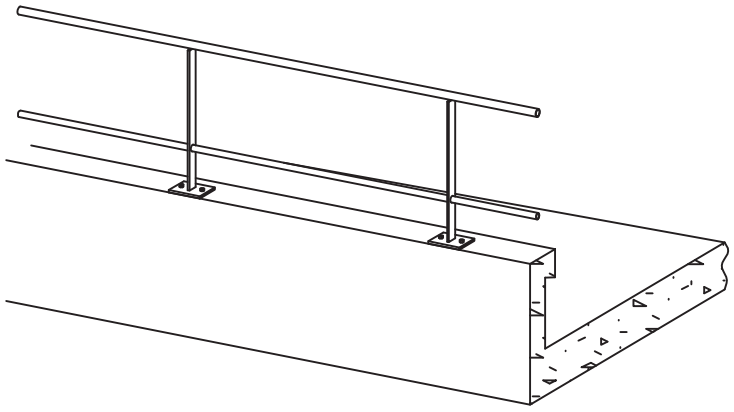
Les charges indiqués dans le tableau sont factorisées

fc28 = 24 Mpa (resistance caractéristique pour un cube de 150x150x150 mm)

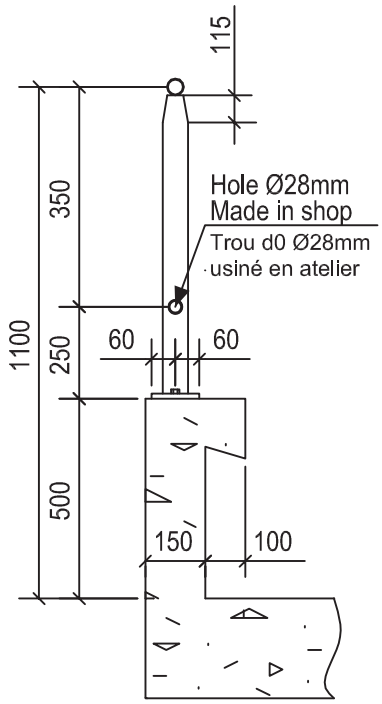
Inserts coulés dans la masse (béton)


PIP ø 42. 4*3. 2
Submark SP1
20
115
Submark SS2
PL 10x60x1069
500
1100
600
100
3
PIP ø 26. 9*2. 3
Submark SP2
Hole ø28 Made In Shop
d0 Ø28 usiné en atelier
Béton armé
Reinforced Concrete
100 mini
1
PL 3x100
Submark ST1
10

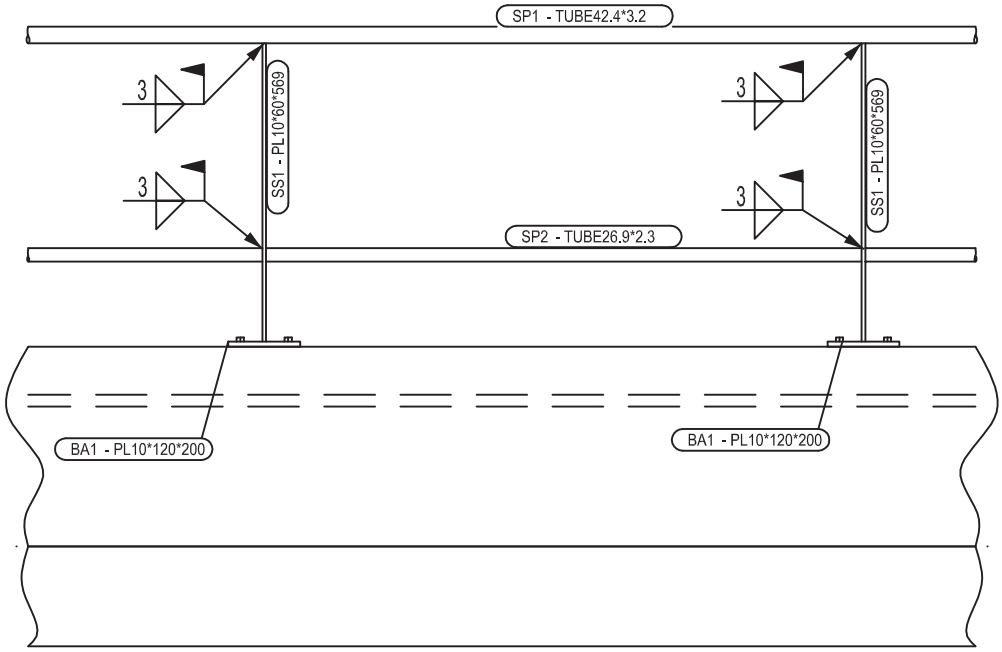

VIEW 1—1
200
70 70
3
100
mini
120
Handrail Axis
1500 maxi
Submark BA1
PL10x120x200
Hole ø14 For Expansion Bolt 12x120
Trou Ø14 pour goujon 12x120



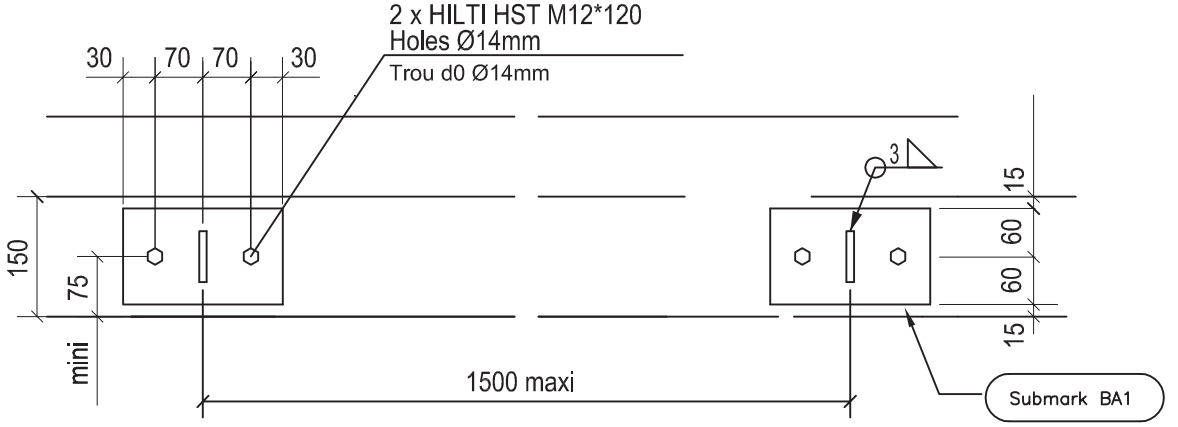
Perspective



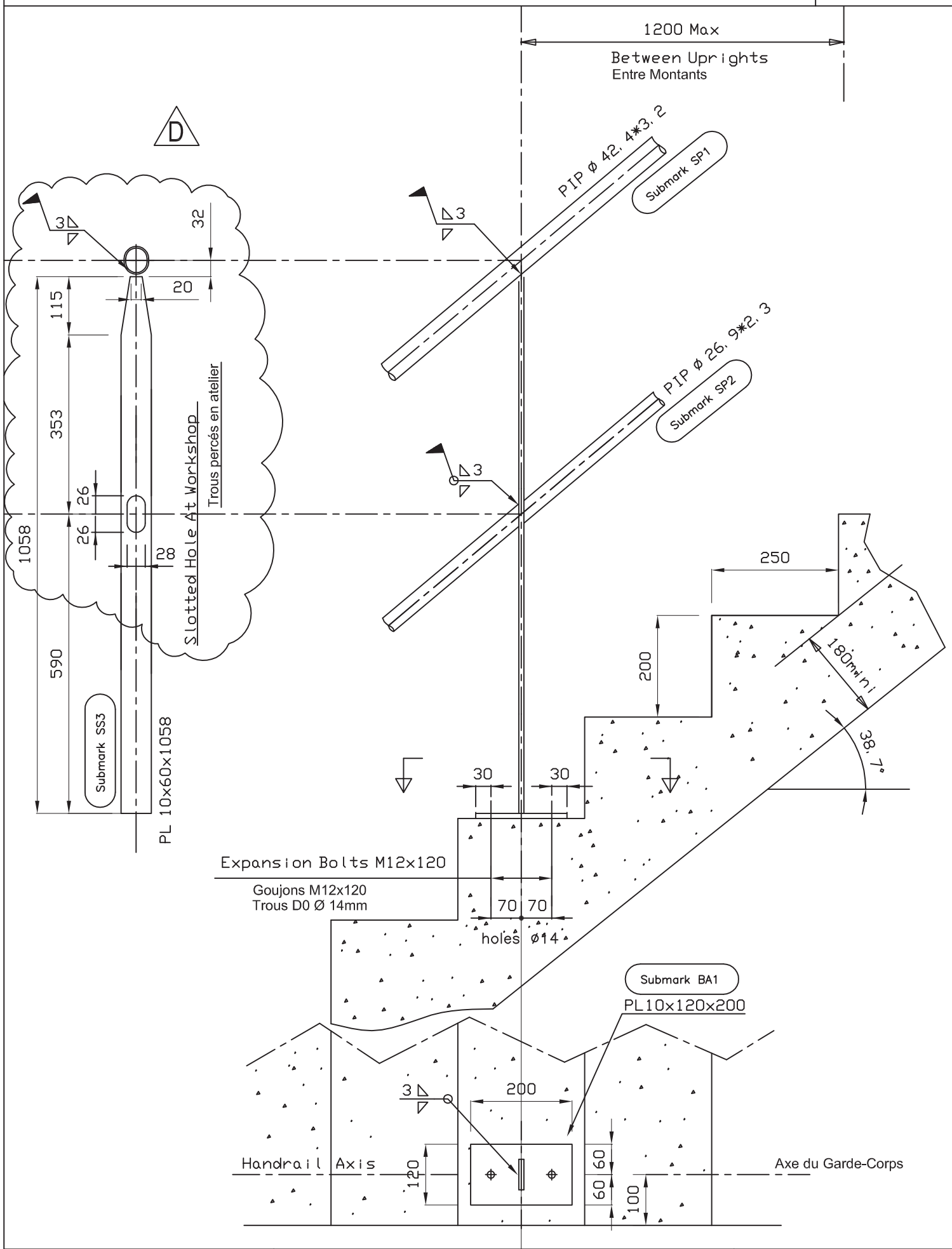
Side view / Vue Latérale
Ech : 1:20

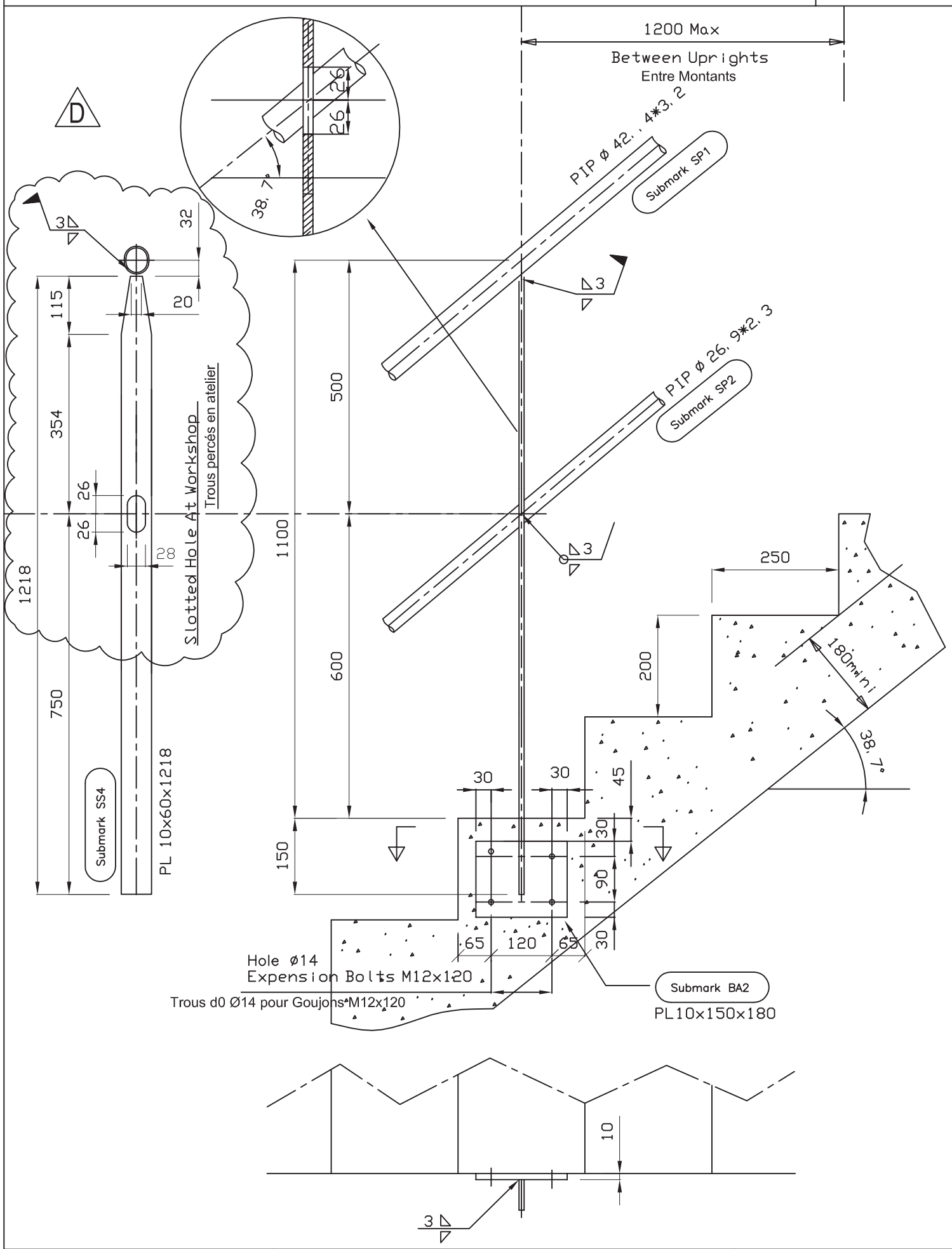


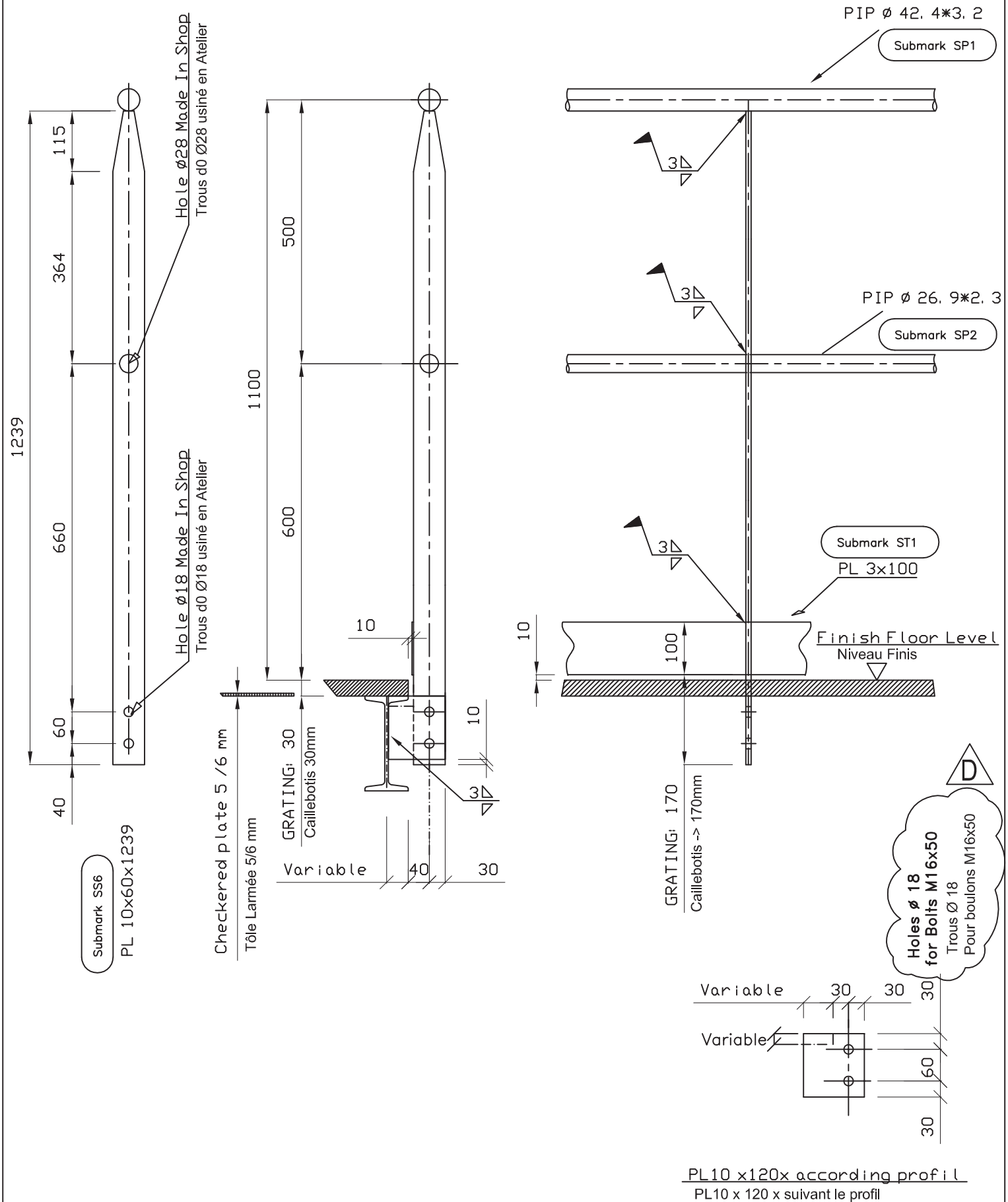
Front view / Vue Frontale
Ech : 1:20

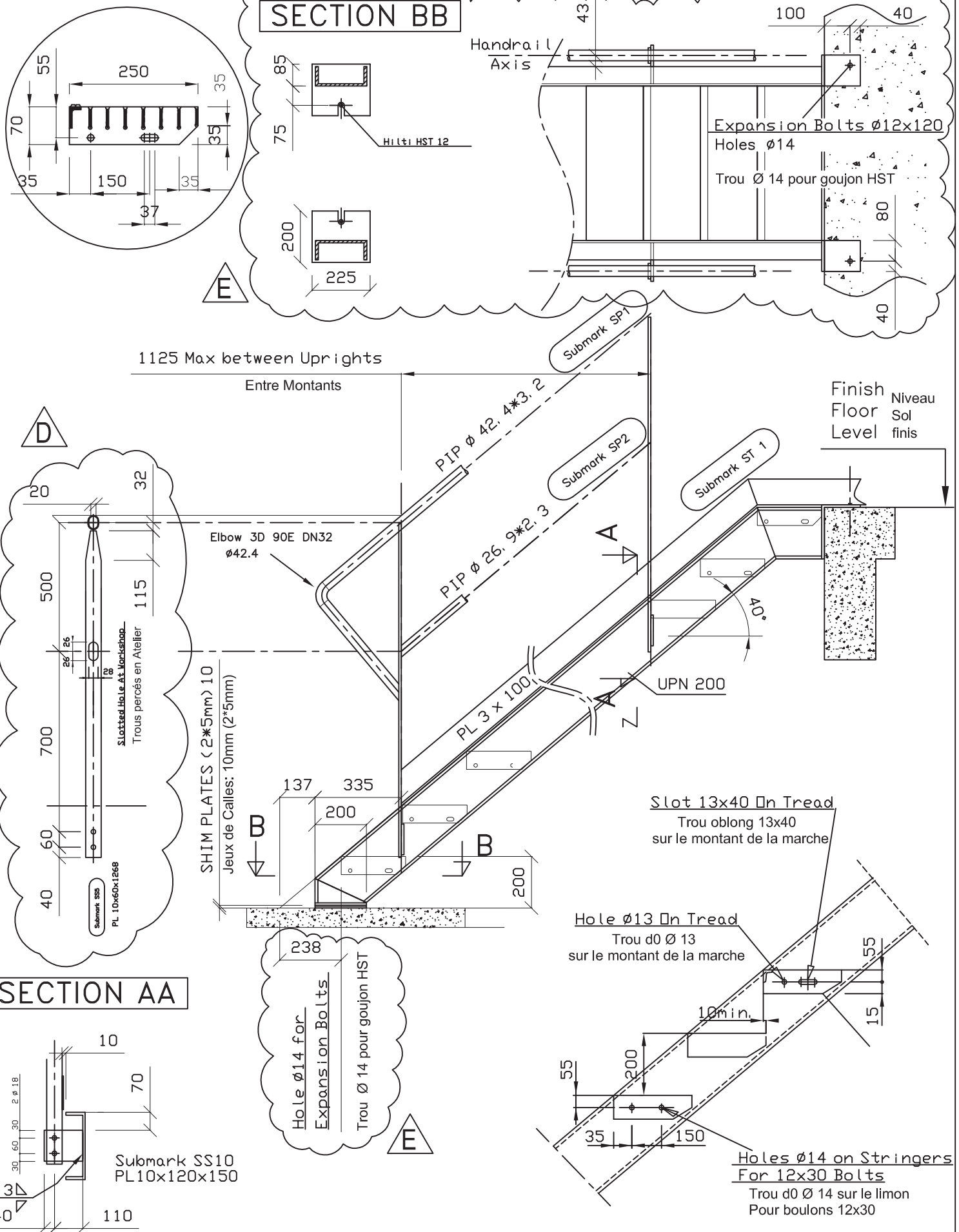


Plan View / Vue en Plan
Ech : 1:10

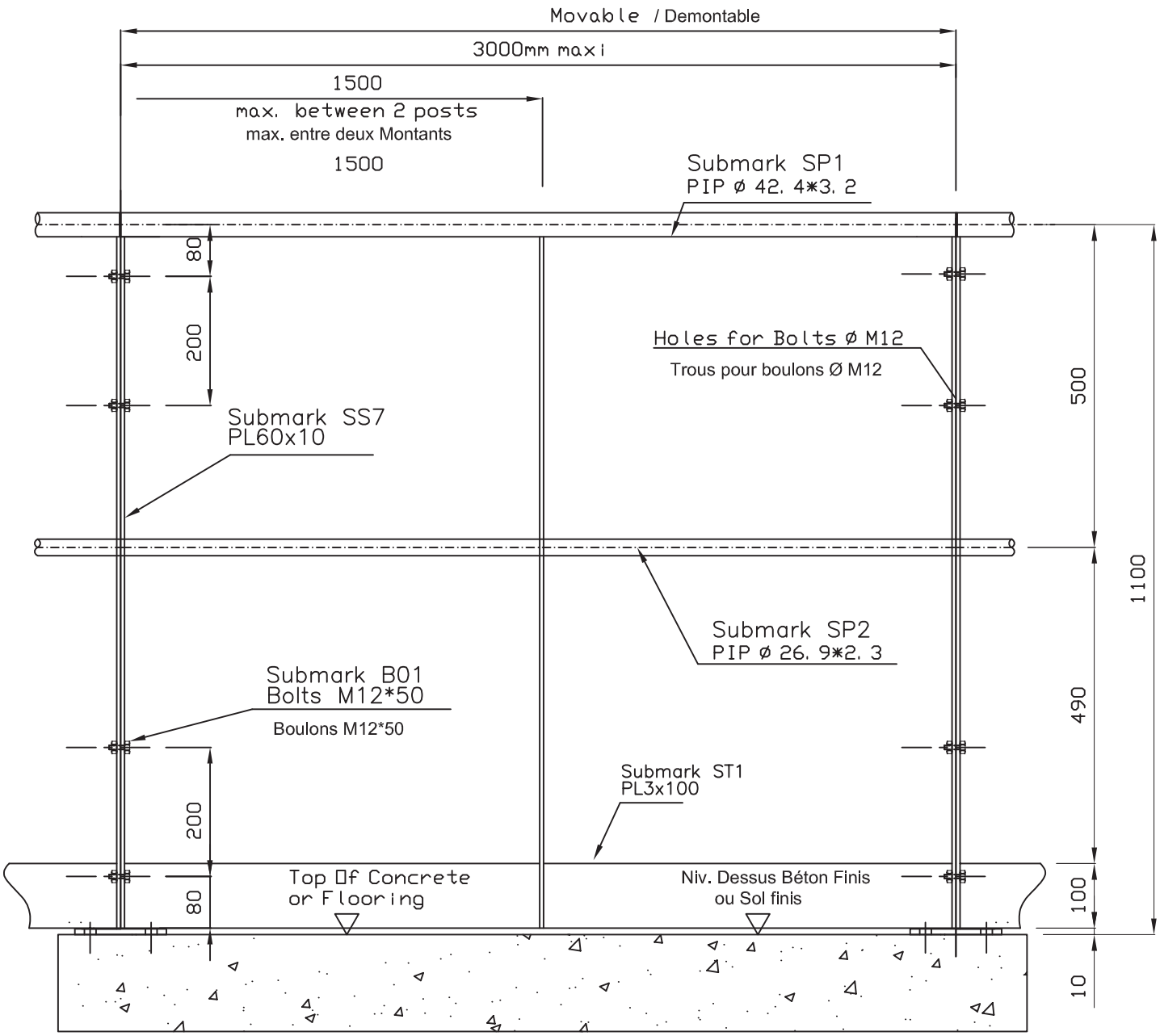

1200 Max
Between Uprights
Entre Montants
D
PIP ø 42, 4*3, 2
Submark SP1
PIP ø 26, 9*2, 3
Submark SP2
3
32
20
115
353
26
26
28
1058
590
Slotted Hole At Workshop
Trous percés en atelier
Submark SS3
PL 10x60x1058
250
200
180mini
38, 7°
30
30
Expansion Bolts M12x120
Goujons M12x120
Trous D0 Ø 14mm
70 70
holes ø14
Submark BA1
PL10x120x200
200
Handrail Axis
120
60
60
100
Axe du Garde-Corps


1200 Max
Between Uprights
Entre Montants
D
26
26
38, 7°
PIP ø 42, , 4*3, 2
Submark SP1
3
32
20
115
354
26
26
20
1218
Slotted Hole At Workshop
Trous percés en atelier
500
1100
600
150
PIP ø 26, 9*2, 3
Submark SP2
3
3
250
200
180mini
38, 7°
750
Submark SS4
PL 10x60x1218
30
30
45
30
90
30
65
120
65
Hole ø14
Expension Bolts M12x120
Trous d0 Ø14 pour Goujons M12x120
Submark BA2
PL10x150x180
10
3

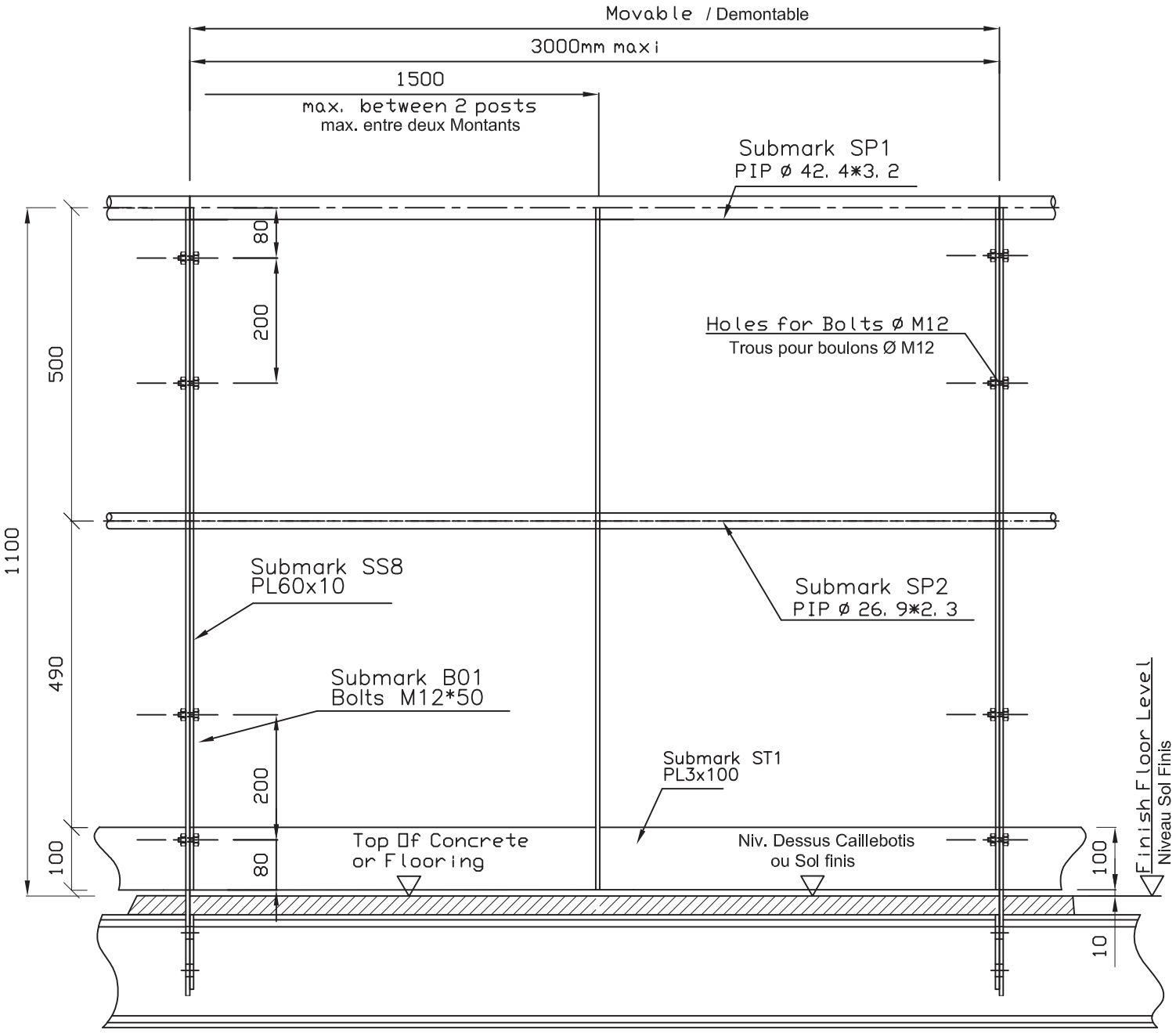

PIP ø 42, 4*3, 2
Submark SP1
PIP ø 26, 9*2, 3
Submark SP2
Submark ST1
PL 3x100
Finish Floor Level
Niveau Finis
Hole ø28 Made In Shop
Trous d0 Ø28 usiné en Atelier
Hole ø18 Made In Shop
Trous d0 Ø18 usiné en Atelier
1239
115
364
660
60
40
500
1100
600
10
100
3
Submark SS6
PL 10x60x1239
Checkered plate 5 /6 mm
Tôle Larmée 5/6 mm
GRATING: 30
Caillebotis 30mm
GRATING: 170
Caillebotis -> 170mm
Variable
40
30
D
Holes ø 18
for Bolts M16x50
Trous Ø 18
Pour boulons M16x50
60
PL10 x120x according profil
PL10 x 120 x suivant le profil

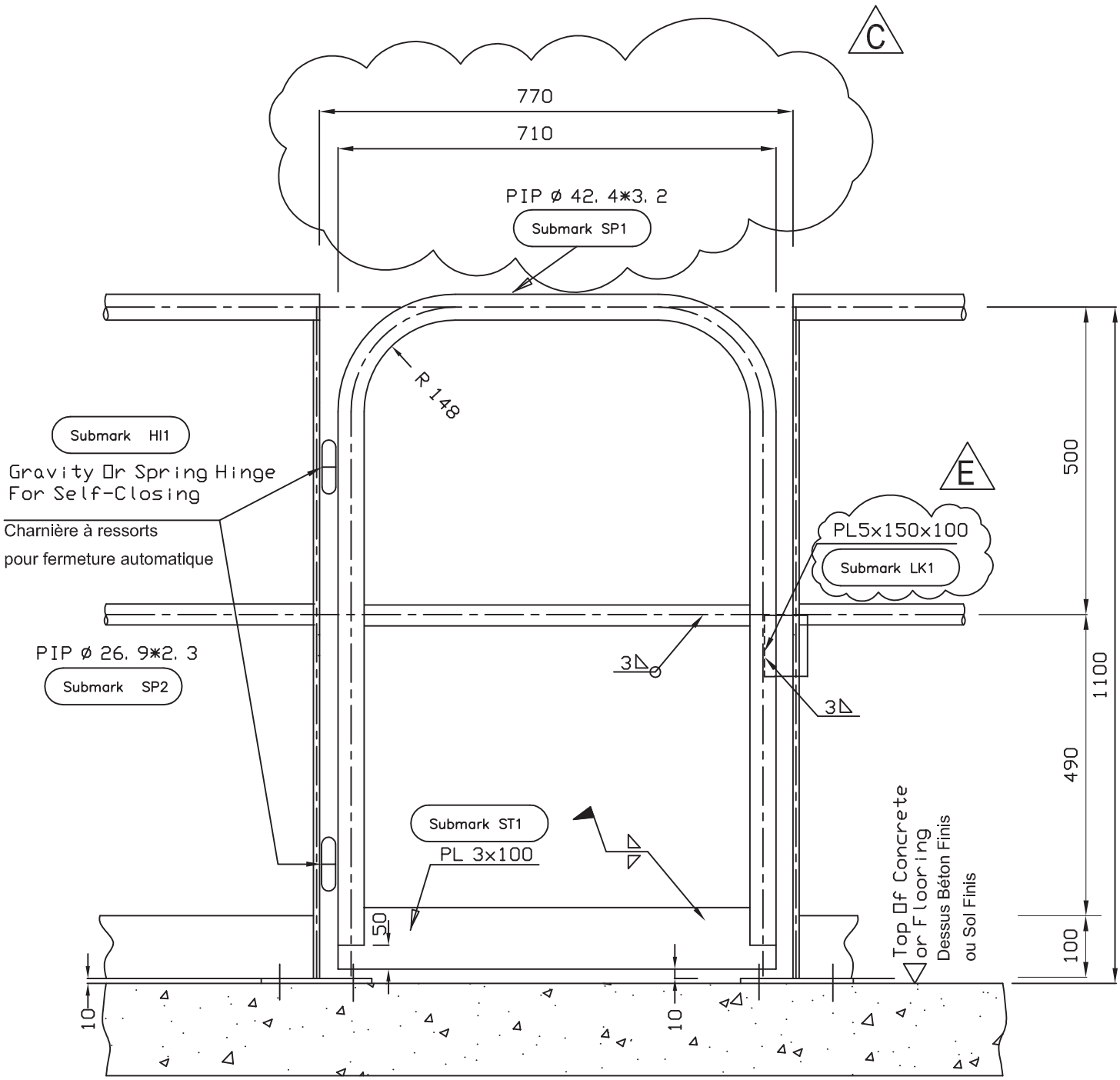

SECTION BB
Handrail Axis
Expansion Bolts ø12x120
Holes ø14
Trou Ø 14 pour goujon HST
Hilti HST 12
1125 Max between Uprights
Entre Montants
Finish Floor Level
Niveau Sol finis
Submark SP1
Submark SP2
Submark ST 1
PIP ø 42, 4*3, 2
PIP ø 26, 9*2, 3
Elbow 3D 90E DN32
ø42.4
UPN 200
PL 3 x 100
40°
SHIM PLATES (2*5mm) 10
Jeux de Calles: 10mm (2*5mm)
Slotted Hole At Workshop
Trous percés en Atelier
Submark SS5
PL 10x60x1268
SECTION AA
Submark SS10
PL10x120x150
Hole ø14 for Expansion Bolts
Trou Ø 14 pour goujon HST
Slot 13x40 On Tread
Trou oblong 13x40
sur le montant de la marche
Hole ø13 On Tread
Trou d0 Ø 13
sur le montant de la marche
10min.
Holes ø14 on Stringers
For 12x30 Bolts
Trou d0 Ø 14 sur le limon
Pour boulons 12x30

GARD-CORPS DEMONTABLE SUR DALLE BETON

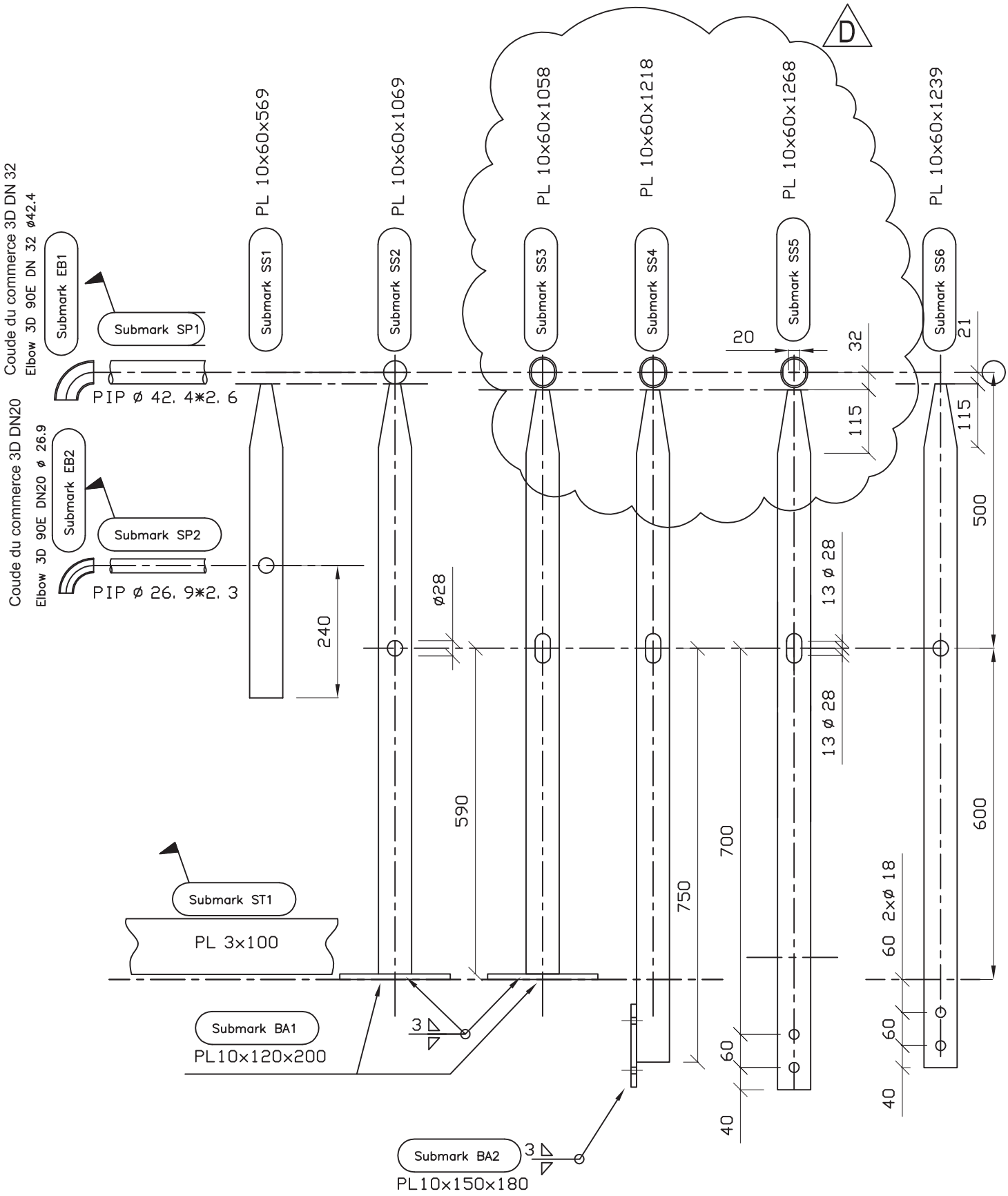


GARDE-CORPS DEMONTABLE SUR CHARPENTE METALLIQUE



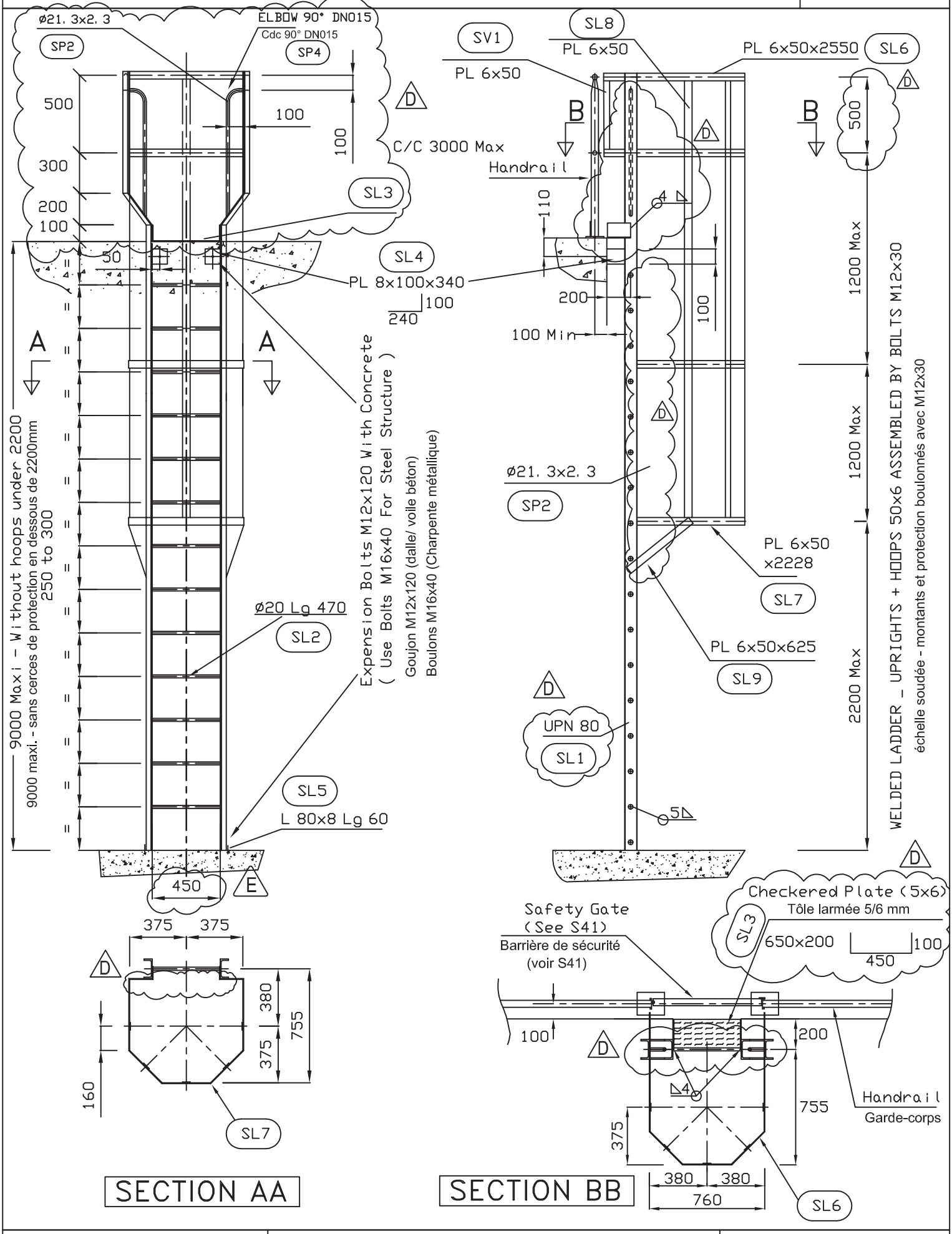

C
770
710
PIP ø 42. 4*3. 2
Submark SP1
R 148
Submark HI1
Gravity Or Spring Hinge
For Self-Closing
Charnière à ressorts
pour fermeture automatique
E
PL5x150x100
Submark LK1
PIP ø 26. 9*2. 3
Submark SP2
3
3
Submark ST1
PL 3x100
50
10
10
500
1100
490
100
Top Of Concrete
or Flooring
Dessus Béton Finis
ou Sol Finis

HANDRAIL : SUBMARKS / GARDE-CORPS: SOUS-MARQUES



HOOP LADDER / ECHELLE A CRINOLINE

S38A



SECTION AA

SECTION BB

fives fcb

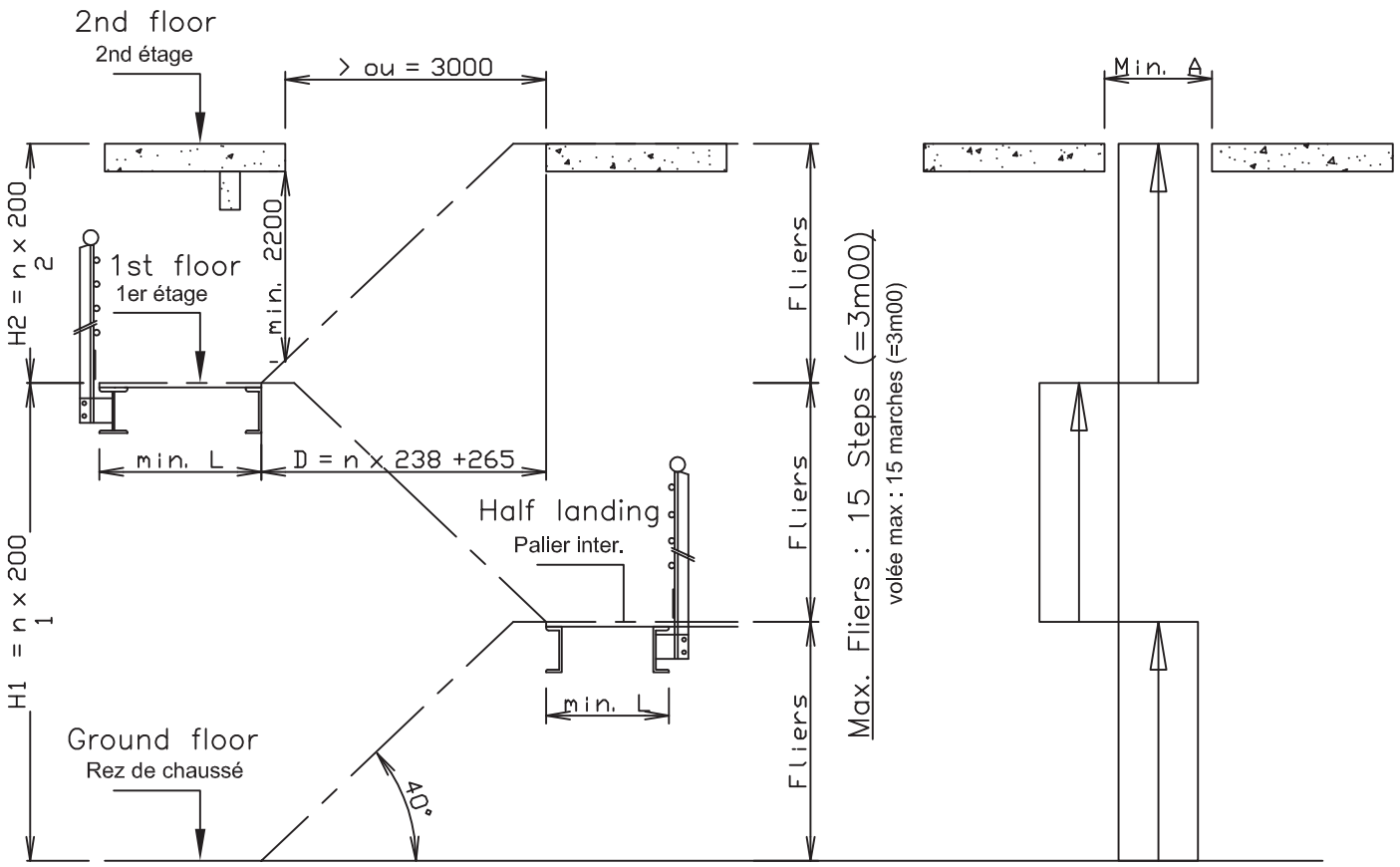
CHL1

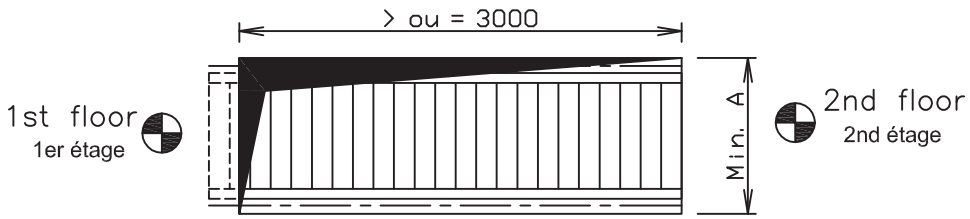
STEEL STRUCTURE STANDARD

Sheet 18

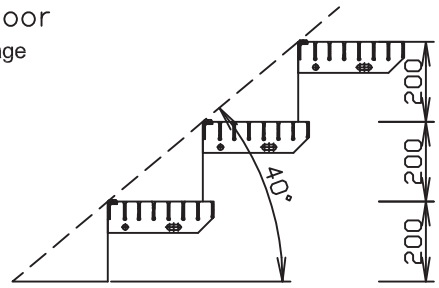
CHL1 S20 01 A01

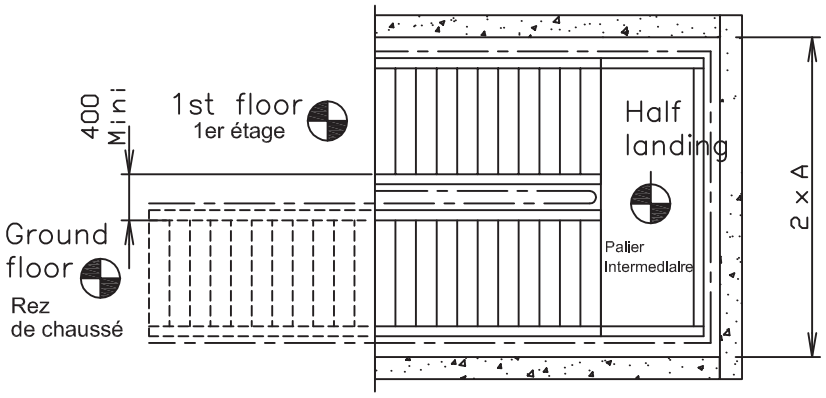
STANDARD STAIRS Dimensions / DIMENSIONS STANDARD POUR ESCALIERS

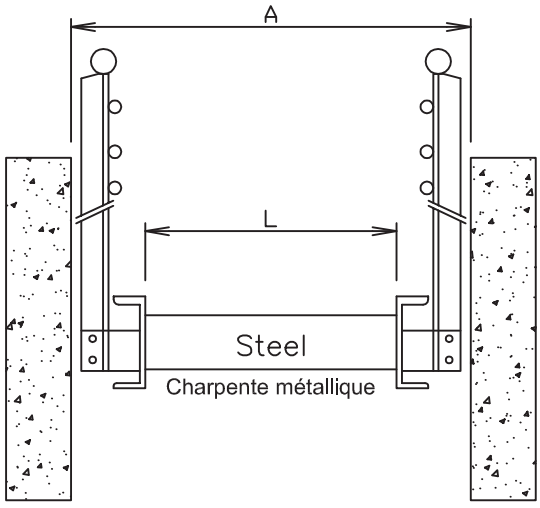




STEPS / STEPS :



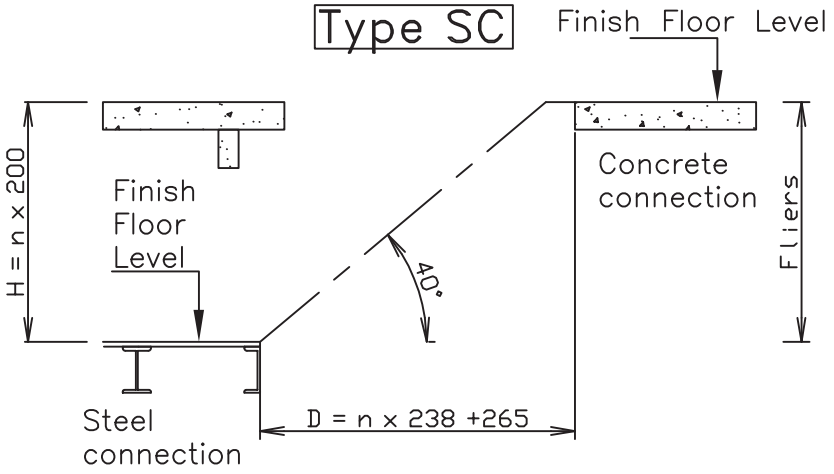




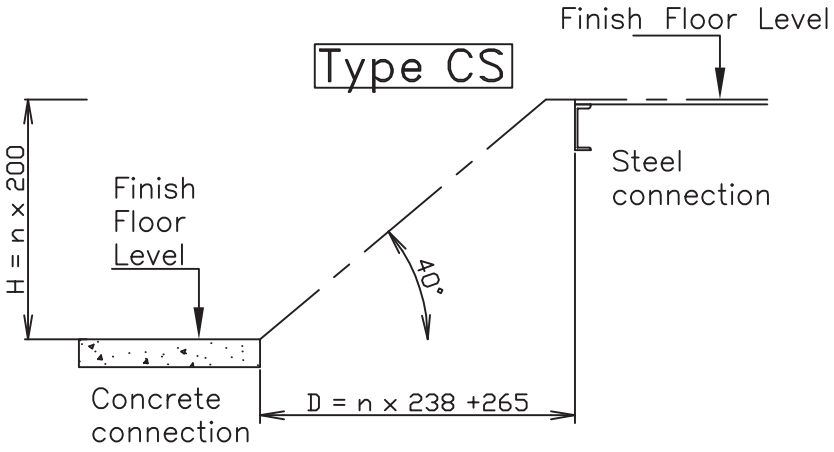
STANDARDS STAIRS / ESCALIERS STANDARD		
Width/ largeur: L	Dimensions/ Dimentions: A	Access : Type:
600	1000	Occasionnal
800	1200	Normal

STANDARD STAIRS Type / TYPE D'ESCALIERS STANDARD

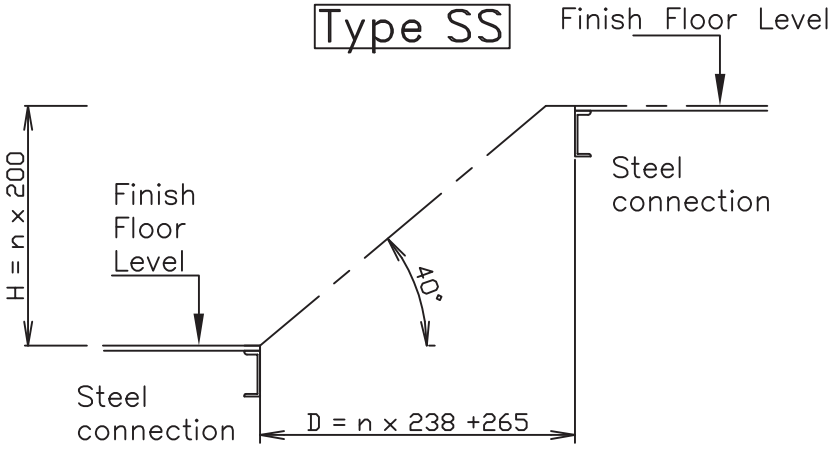
Type SC



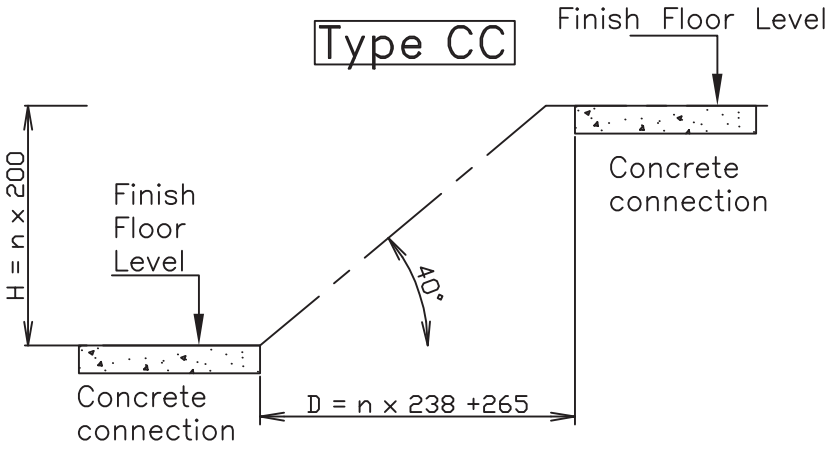
Type CS



Type SS



Type CC

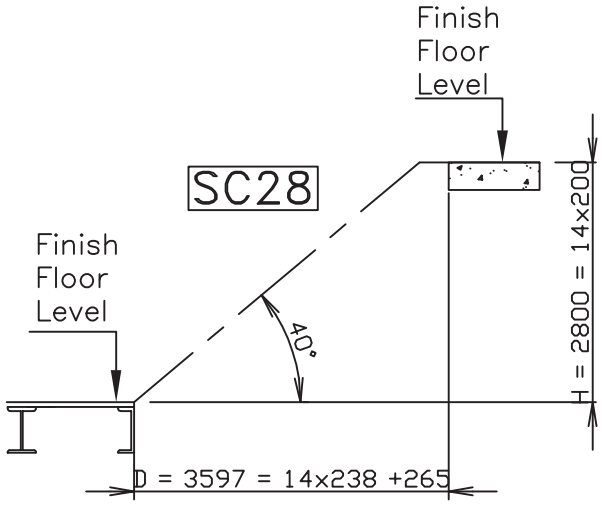


STANDARDS STAIRS / ESCALIER STANDARD :		
Bottom Connection :	Top Connection :	H (in dm) :
Connection au depart de l'esc.	Connection à l'arrivé de l'esc.	Hauteur (en dm)
C	S	02 to 36
S	S	02 to 36
S	C	02 to 36
C	C	02 to 36

C : CONCRETE / BETON

S : STEEL / CHARPENTE METALLIQUE

SC28



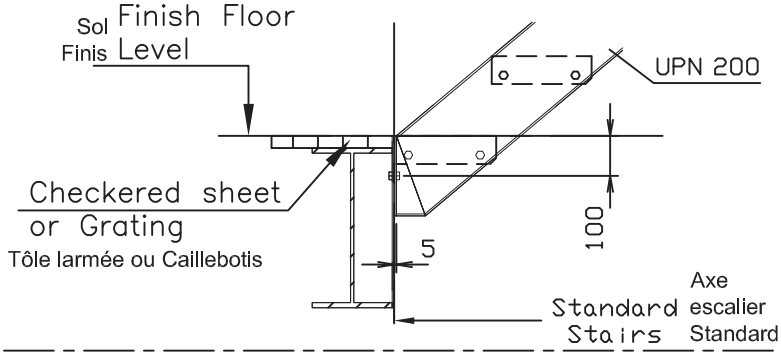
Example :

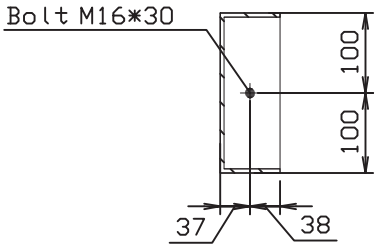
A stair for 2m800 with a connection on bottom on steel and on top on concrete
=> The standard code is SC28

Example :

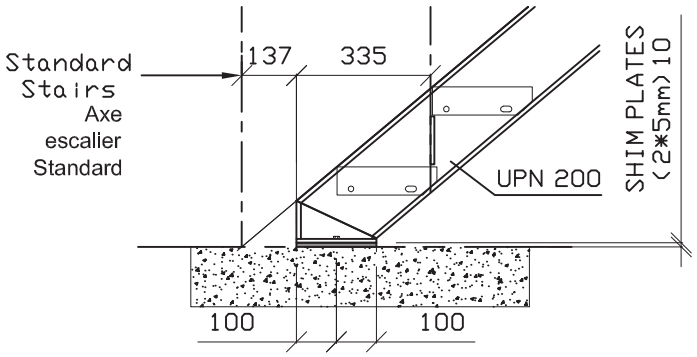
Un escalier de 2m80 fixé sur charpente métallique au départ et connecté sur dalle / voile béton à l'arrivé
=> Le code standard est: SC28

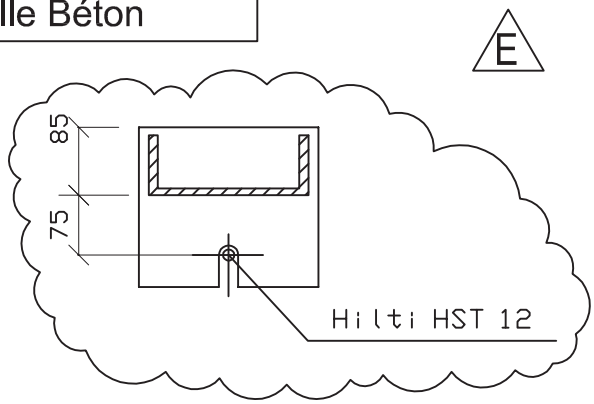
Bottom Connection on steel structure | Depart de l'escalier Sur Charpente Métallique



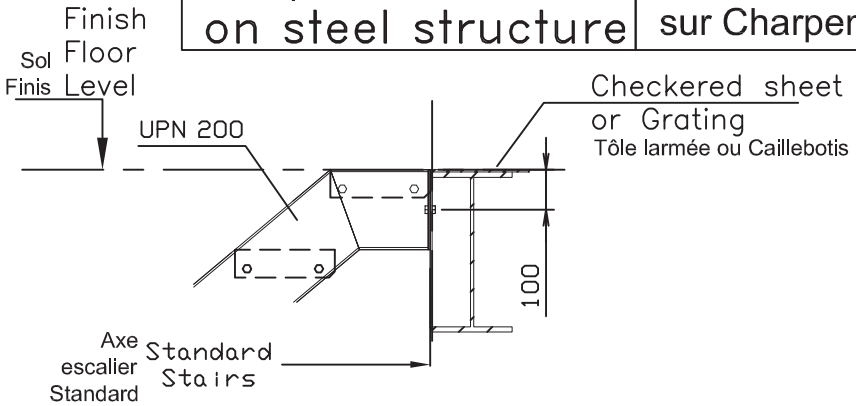


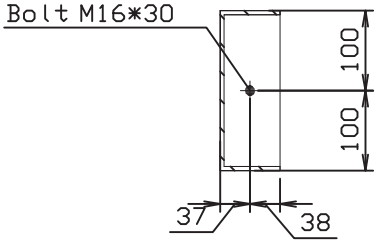
Bottom Connection on concrete | Depart de l'escalier sur dalle Béton



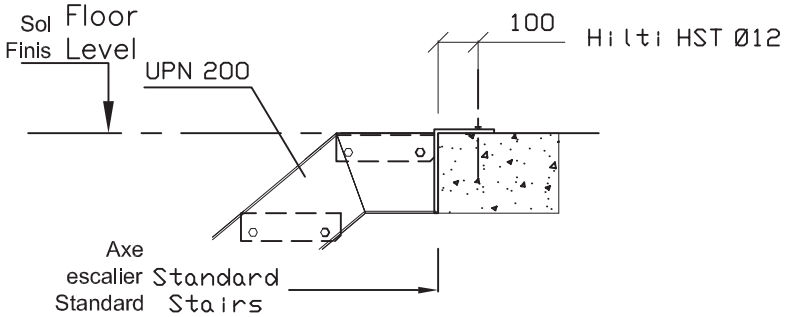


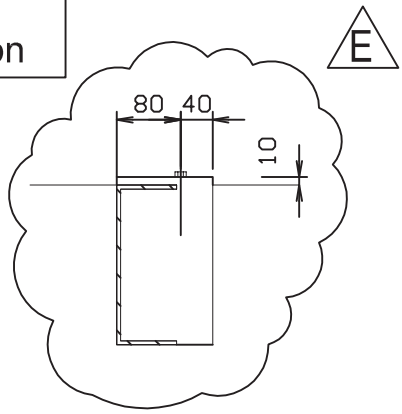
Top Connection on steel structure | Arrivée de l'escalier sur Charpente Métallique





Top Connection on concrete | Arrive de l'escalier sur Dalle / Voile Béton



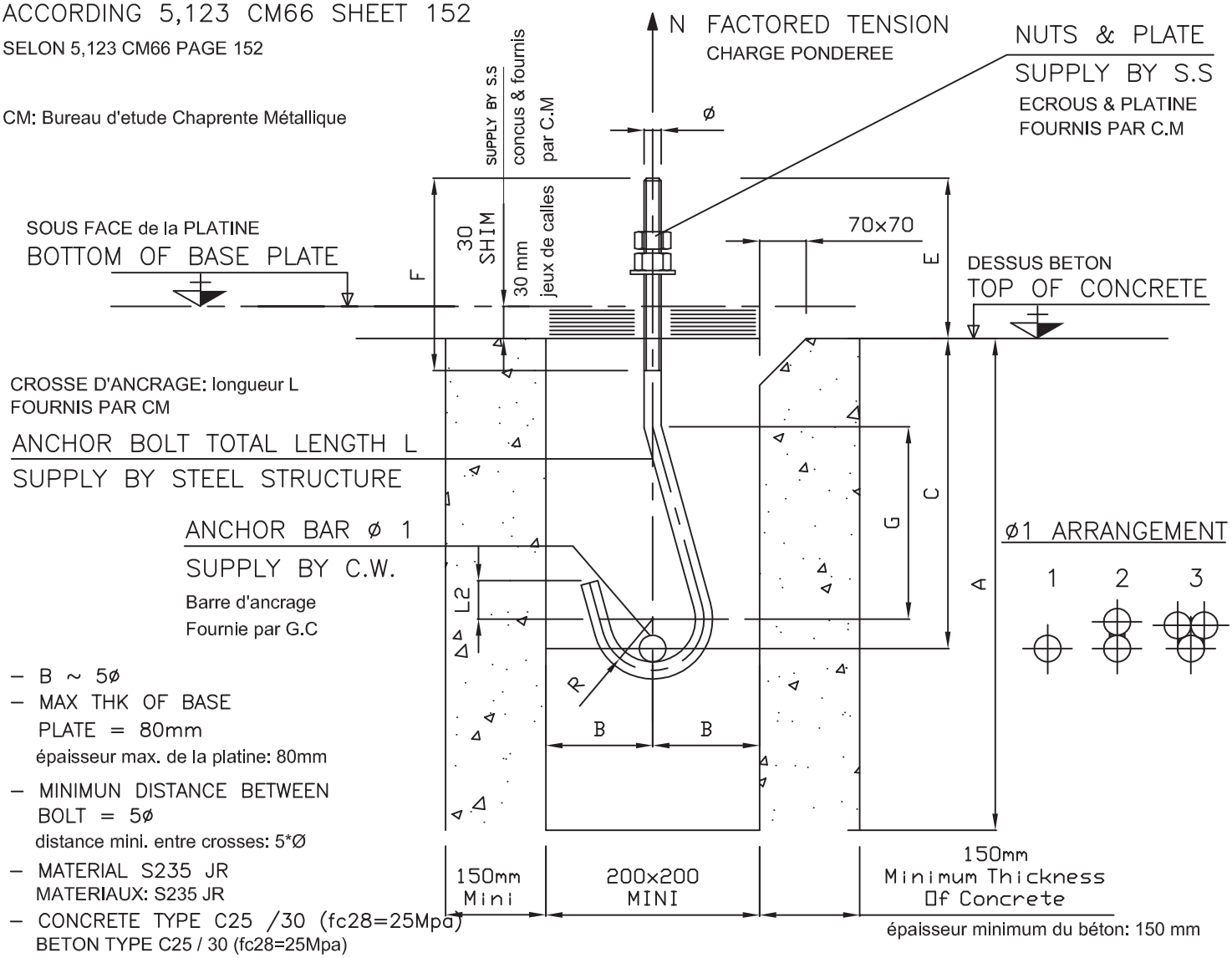


ANCHOR BOLTS FOR STEEL STRUCTURE / CROSSE D'ANCRAGE pour CHARPENTE METALLIQUE

ACCORDING 5,123 CM66 SHEET 152

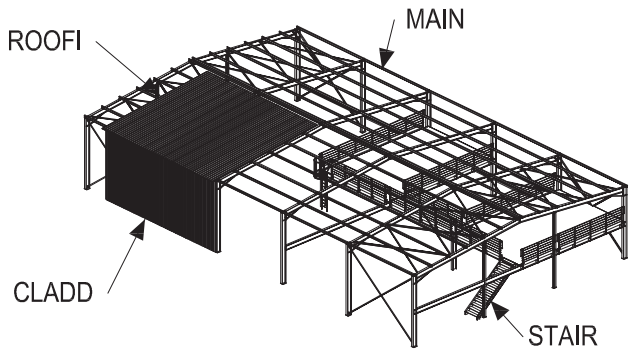
SELON 5,123 CM66 PAGE 152

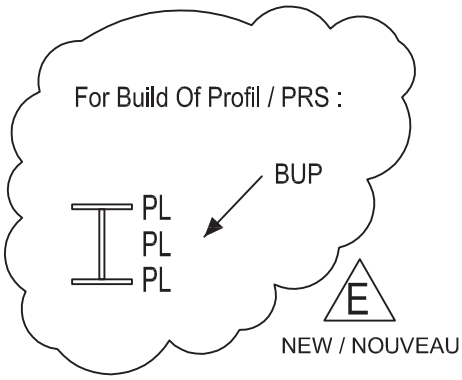
CM: Bureau d'etude Chaprente Métallique

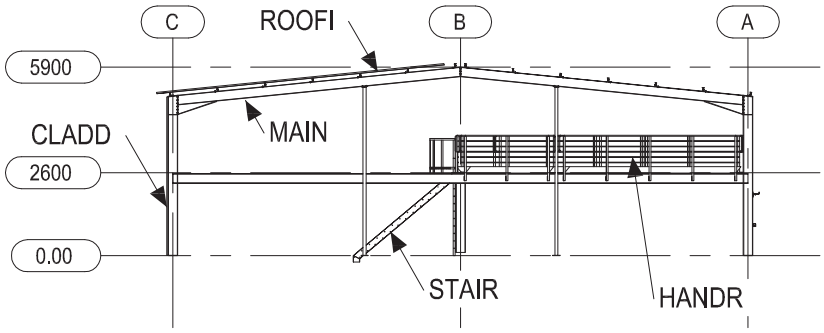


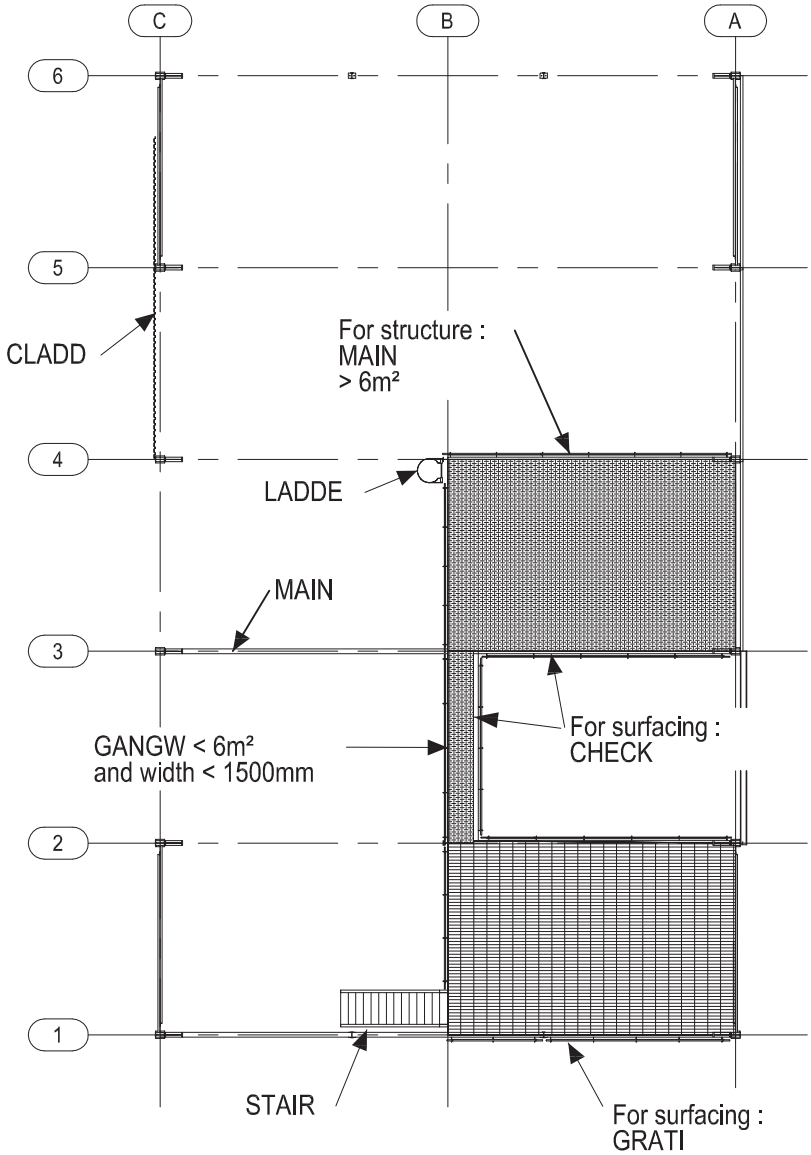
- B ~ 5ø
- MAX THK OF BASE PLATE = 80mm
  épaisseur max. de la platine: 80mm
- MINIMUN DISTANCE BETWEEN BOLT = 5ø
  distance mini. entre crosses: 5*Ø
- MATERIAL S235 JR
  MATERIAUX: S235 JR
- CONCRETE TYPE C25 /30 (fc28=25Mpa)
  BETON TYPE C25 / 30 (fc28=25Mpa)
- P = WEIGHT (Kg)
  OF ANCHOR BOLT WITH 2 NUTS & 1 WASHER
  P = Poids (kg) de la CROSSE D'ANCRAGE & 2 ECROUS + 1 RONDELLE

Mark	ø	ø1	R	L2	A	B	C	E	F	L	G	P	N [daN]
B16	16	25	48	32	460	100	290	150	180	610	180	1.5	2637
B20	20	25	60	40	560	100	360	160	190	740	220	2.5	4095
B24	24	32	72	48	660	120	440	170	200	860	270	3.5	5947
B30	30	32	90	60	820	150	550	180	210	1050	340	6.5	9263
B36	36	2x32	108	72	970	170	660	190	220	1230	400	11	13313
B42	42	3x32	126	84	1120	210	770	200	230	1410	470	17	18092
B48	48	3x32	144	96	1280	240	890	200	230	1610	540	26	23718


ROOFI
MAIN
CLADD
STAIR


For Build Of Profil / PRS :
BUP
PL
PL
PL
E
NEW / NOUVEAU


C
ROOFI
B
A
5900
MAIN
CLADD
2600
0.00
STAIR
HANDR


C
B
A
6
5
CLADD
For structure :
MAIN
> 6m²
4
LADDE
MAIN
3
GANGW < 6m²
and width < 1500mm
For surfacing :
CHECK
2
1
STAIR
For surfacing :
GRATI