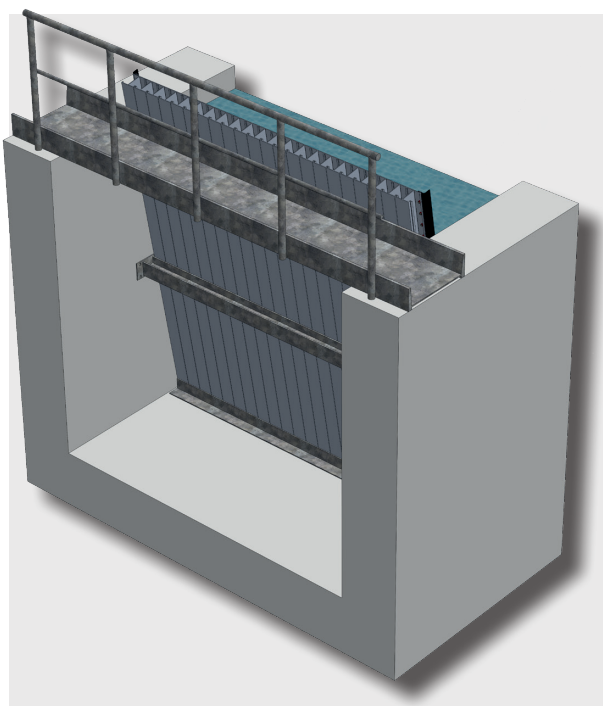


TECHNICAL DATA SHEET

# BARRAGE NEEDLES



**Principle and Operation** ..... **1**

**Profile  
& Technical Characteristics** ..... **3**

[contact@feugier-environnement.com](mailto:contact@feugier-environnement.com)



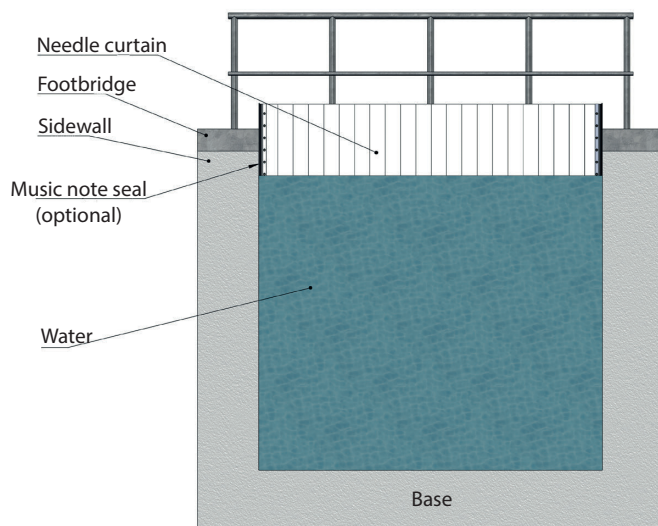
## PRESENTATION

The aluminium needles create a cofferdam for hydraulic works with a water height of 2 to 6 metres.

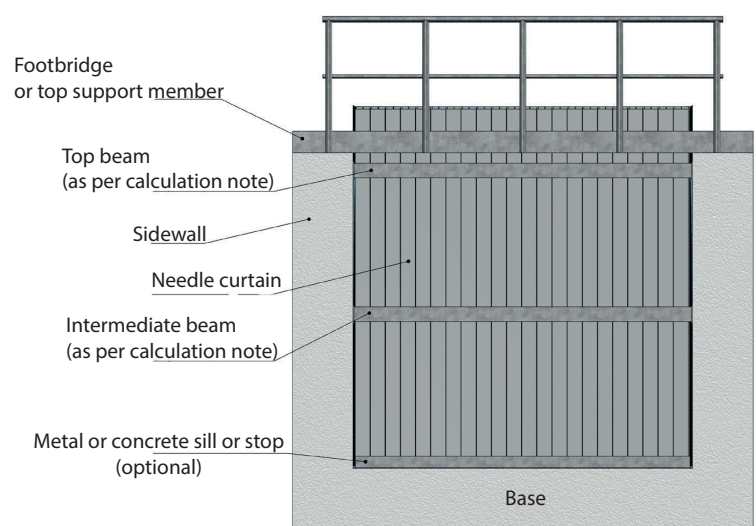
Due to the light weight of the material (aluminium), this type of cofferdam can be installed with minimal resources

## SCHEMATIC DRAWINGS

UPSTREAM VIEW



DOWNSTREAM VIEW

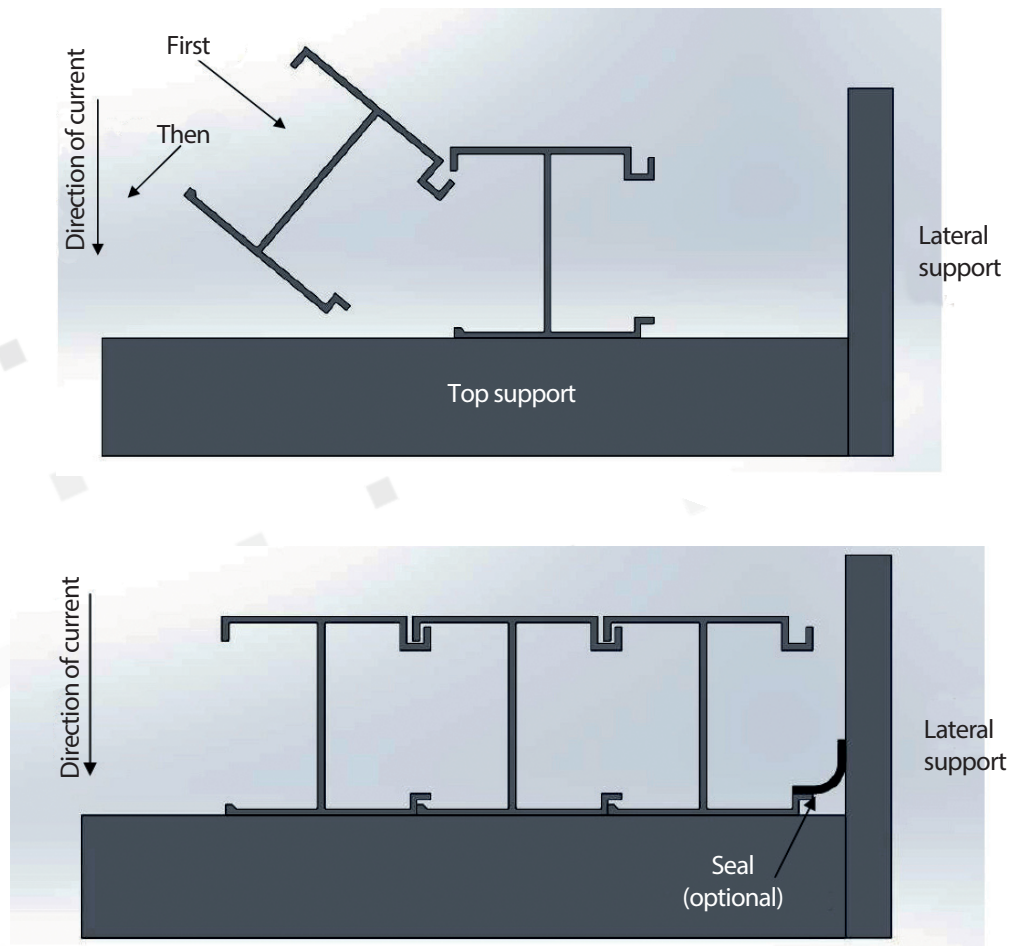


## INSTALLATION

The needles are easy to handle and their unit weight of less than 5.23 kg/ml means that a temporary dam can be installed (preferably in still water) or dismantled very fast.



## INSTALLATION PRINCIPLE



## PERFORMANCE

The overall efficiency of the needle cofferdam can be improved by:

- Installing a tarp over it
- Installing a return pump downstream

How the endmost needles mate with the supports depends on the type of project.



MATERIALS

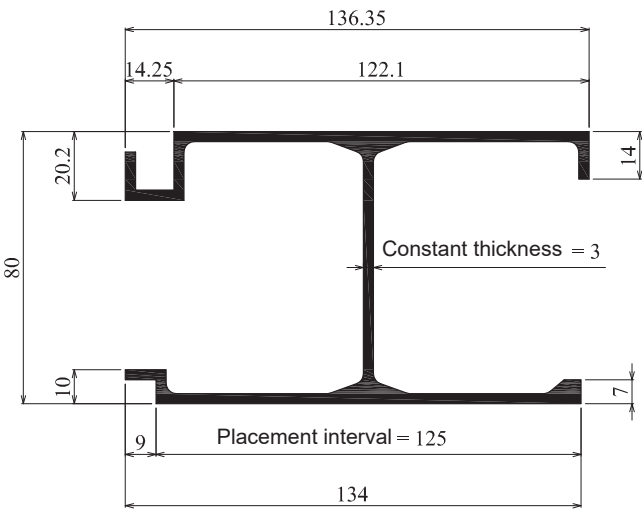
The needles are made of aluminium alloy 6005 AT6 which has the following mechanical properties:

ALLOY	Minimum mechanical properties		
	Kg/mm²	E Kg/mm²	A%
A-SGM Quench-tempered hardened (6005 A)	29	24	8

Modulus of inertia = 89cm<sup>3</sup> / Thickness: 80, 100, 110 et 130 mm

TECHNICAL CHARACTERISTICS

6005 ATS 80 - 7548

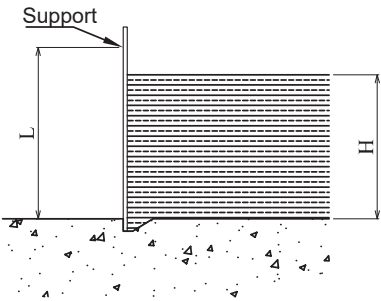


6005 AT6

Section in mm2.....	1.275
Weight per metre in kg.....	3.430
I/V moment of resistance in mm3.....	36.100
Moment of inertia I in mm4.....	1494.580
I/V of a metre of dam in mm3.....	288.800
I of a metre of dam in mm4.....	11 596.640

Table of maximum stress n in kg/mm2 and deflection f in mm as a function of distance L and water height H.

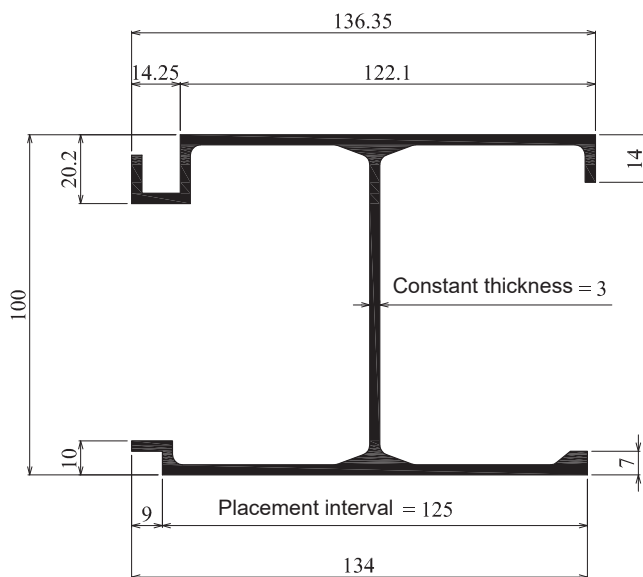
L en m	H en m			
0	1	2	3	4
1	n = 0.22 f = 0.1			
2	n = 0.37 f = 0.65	n = 1.75 f = 2.6		
3	n = 0.43 f = 2.2	n = 2.5 f = 8.8	n = 6 f = 19.7	
4	n = 0.48 f = 5.2	n = 2.95 f = 20.8	n = 7.8 f = 46.8	n = 14.2 f = 83.3



N.B. - There must be 8 needles per metre of dam.



## 6005 AT6 100 - 7547

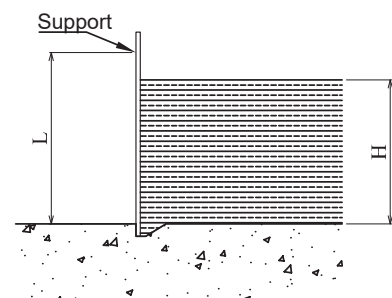


### 6005 AT6

Section in mm <sup>2</sup> .....	1.335
Weight per metre in kg.....	3.600
I/V moment of resistance in mm <sup>3</sup> .....	47.440
Moment of inertia I in mm <sup>4</sup> .....	2467.000
I/V of a metre of dam in mm <sup>3</sup> .....	379.520
I of a metre of dam in mm <sup>4</sup> .....	19 736.000

**Table of maximum stress n in kg/mm<sup>2</sup> and deflection f in mm as a function of distance L and water height H**

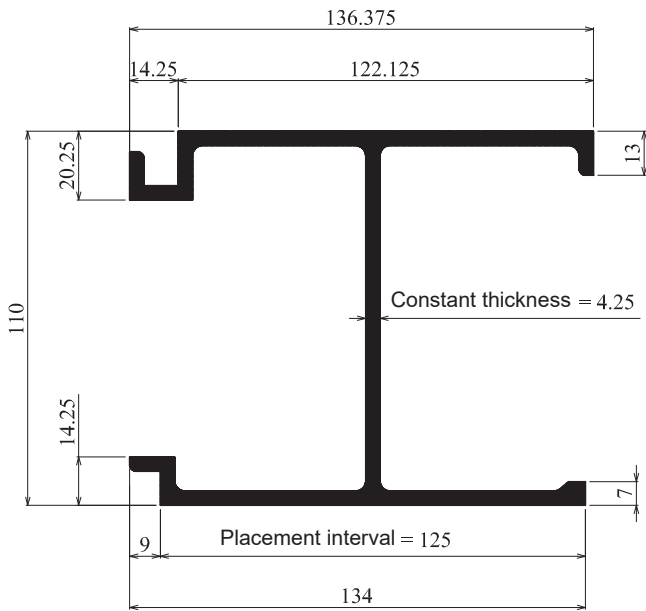
L en m	H en m		
	2	3	4
0			
2	n = 1.35 f = 1.6		
3	n = 1.9 f = 5.3	n = 4.55 f = 12	
4	n = 2.23 f = 12.6	n = 5.92 f = 28.4	n = 10.8 f = 50.5
5	n = 2.45 f = 24.6	n = 6.85 f = 55.5	n = 13.36 f = 98.6
6	n = 2.6 f = 42.6	n = 7.5 f = 95.8	n = 15.25 f = 135



N.B. - There must be 8 needles per metre of dam.



6005 AT6 110 - 6979

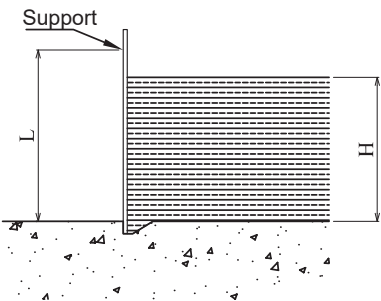


6005 AT6

Section in mm2.....	1.820
Weight per metre in kg.....	4.900
I/V moment of resistance in mm3.....	64.000
Moment of inertia I in mm4.....	3575.400
I/V of a metre of dam in mm3.....	512.000
I of a metre of dam in mm4.....	28 603.200

Table of maximum stress n in kg/mm2 and deflection f in mm as a function of distance L and water height H.

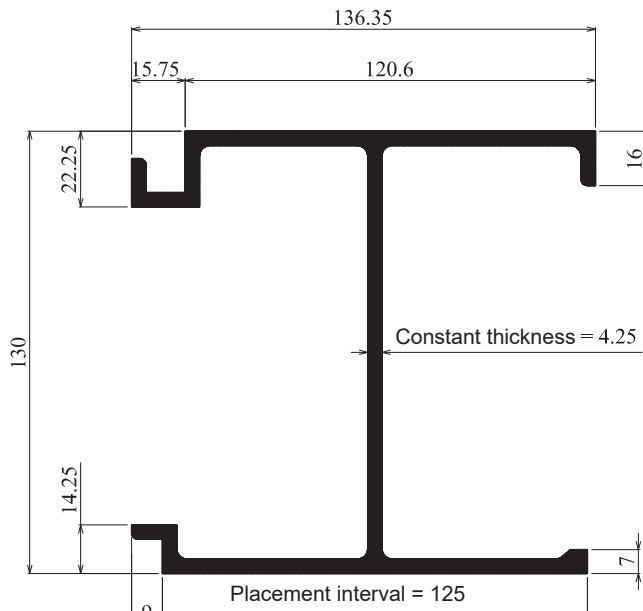
L in m	H in m			
0	2	3	4	5
2	n = 1 f = 1.1			
3	n = 1.4 f = 3.6	n = 3.4 f = 8.2		
4	n = 1.65 f = 8.7	n = 4.3 f = 19.6	n = 8 f = 34.8	
5	n = 1.8 f = 17	n = 5 f = 38.2	n = 9.9 f = 68	n = 15.6 f = 106
6	n = 1.93 f = 29.4	n = 5.6 f = 66	n = 11.3 f = 117.5	n = 18.7 f = 183



N.B. - There must be 8 needles per metre of dam.



## 6005 AT6 130 - 6339

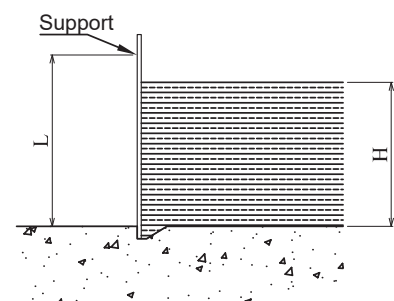


### 6005 AT6

Section in mm <sup>2</sup> .....	1.936
Weight per metre in kg.....	5.230
I/V moment of resistance in mm <sup>3</sup> .....	84.500
Moment of inertia I in mm <sup>4</sup> .....	5580.000
I/V of a metre of dam in mm <sup>3</sup> .....	676.000
I of a metre of dam in mm <sup>4</sup> .....	44 640.000

**Table of maximum stress  $n$  in kg/mm<sup>2</sup> and deflection  $f$  in mm as a function of distance  $L$  and water height  $H$ .**

L in m	H in m				
	2	3	4	5	6
0					
2	$n = 0.76$ $f = 0.7$				
3	$n = 1$ $f = 2.3$	$n = 2.56$ $f = 5.2$			
4	$n = 1.25$ $f = 5.5$	$n = 3.3$ $f = 12.5$	$n = 6$ $f = 22.2$		
5	$n = 1.38$ $f = 10.5$	$n = 3.85$ $f = 24.4$	$n = 7.5$ $f = 43.4$	$n = 11.8$ $f = 67.8$	
6	$n = 1.46$ $f = 18.7$	$n = 4.2$ $f = 42.2$	$n = 8.5$ $f = 75$	$n = 14.1$ $f = 117.2$	$n = 20.5$ $f = 166$



N.B. - There must be 8 needles per metre of dam.

## EXAMPLES







FEUGIER  
environnement  
groupe metalpe

## CONTACT

■ Adress :  
ZAC de Longeret  
01150 SAULT BRENAZ  
FRANCE

■ Tel :  
+33 (0) 474 366 244

■ Email :  
[contact@feugier-environnement.com](mailto:contact@feugier-environnement.com)

