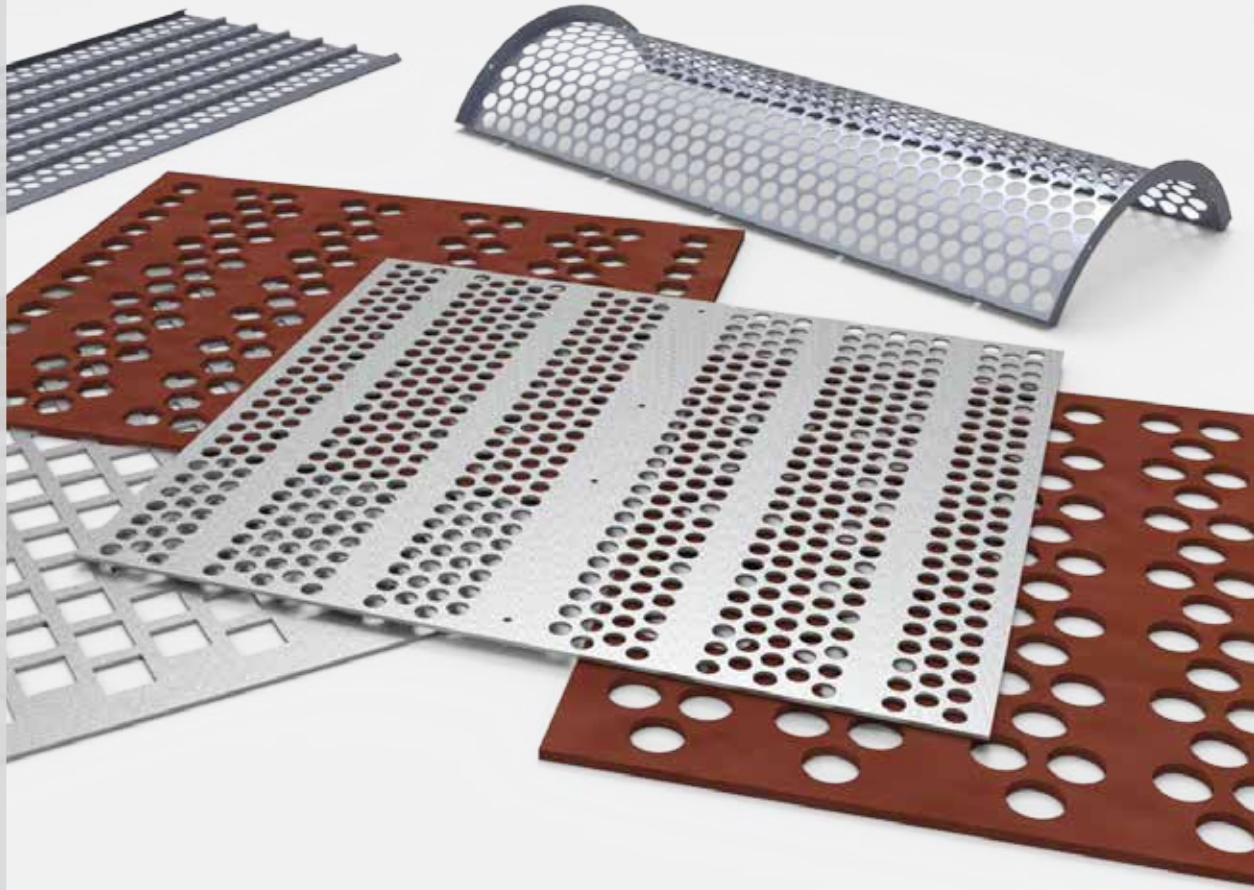


# Perforated Metal Plate



Screening  
Media

8

- 8. Perforated Metal Plate
  - 8.1. Carbon steel
  - Stainless steel
  - Wear-resistant steel
- 8.2. Available apertures



## Perforated Metal Plate

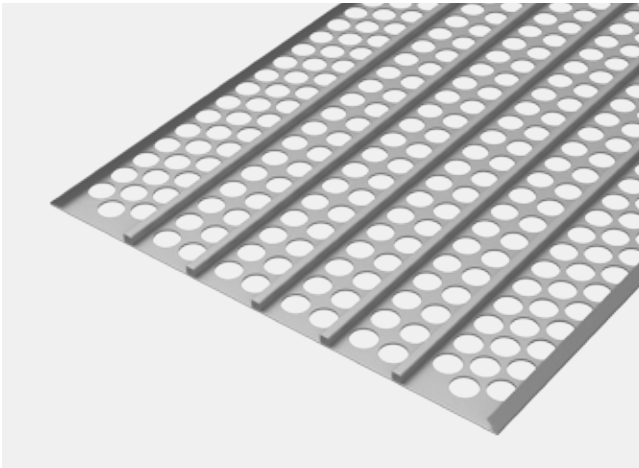
For their strong resistance to abrasion and impact, they are mainly used for pre-screening and scalping, attached to the upper decks either with clamps or screwed onto the frame.

They are manufactured with square, round, slotted and hexagonal perforations and in linear or staggered arrangement.

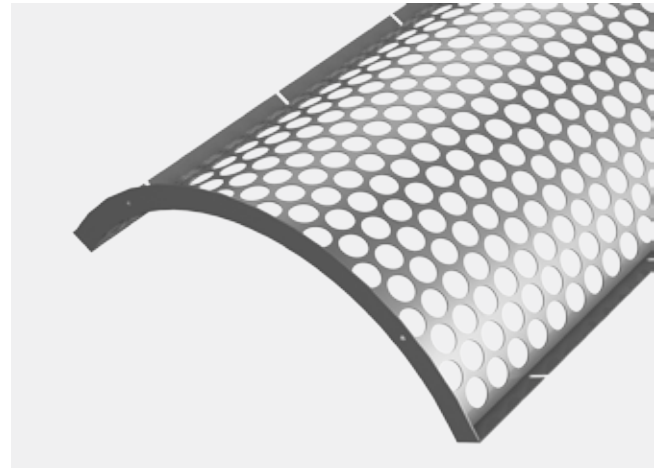
They are generally reinforced with square bars to support bulky sized products or curved to be used with Trommels or rotary screen.

### Manufactured under the following standards:

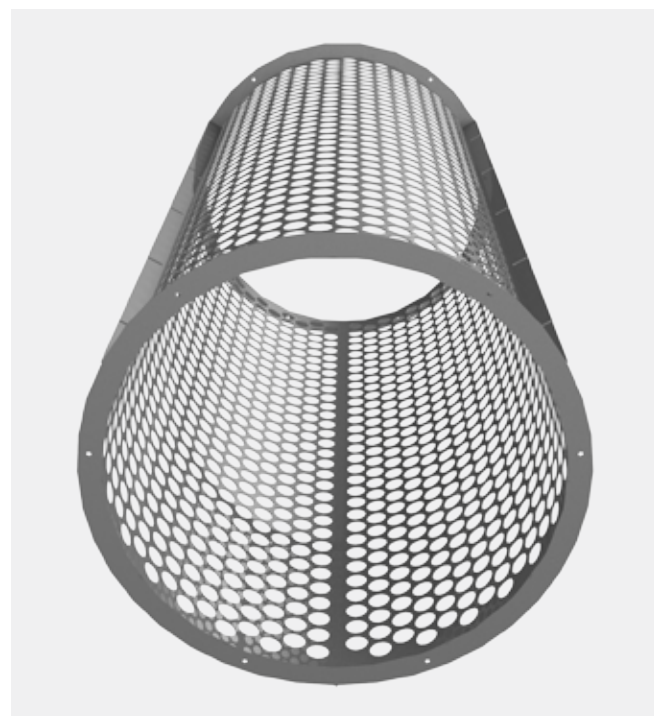
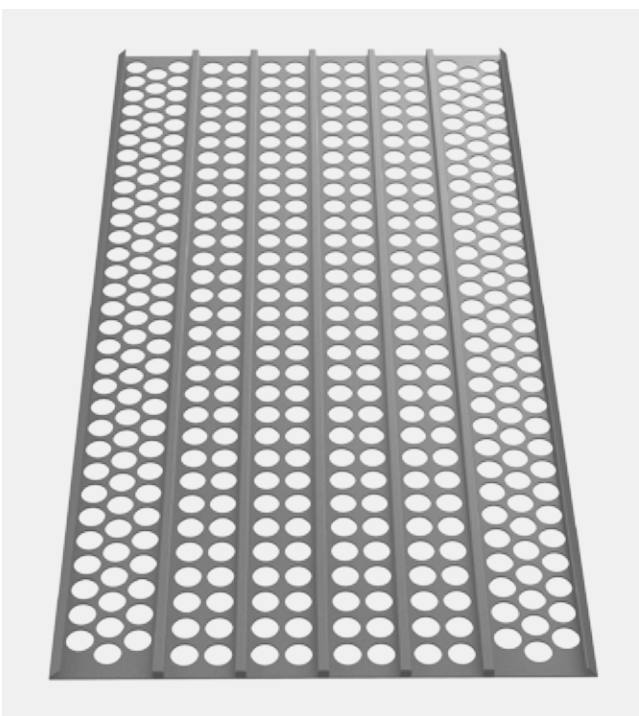
- Carbon steel:  
DD-11 and DD-12 (EN-10111)  
S235 JR and S275 JR (EN-10025)  
DC01 (EN-10130)
- Stainless steel:  
AISI 304 y AISI 316 (EN 10088)
- Wear-resistant steel:  
HB 400 – 600



Metal plates reinforced with square bars



Curved perforated plates

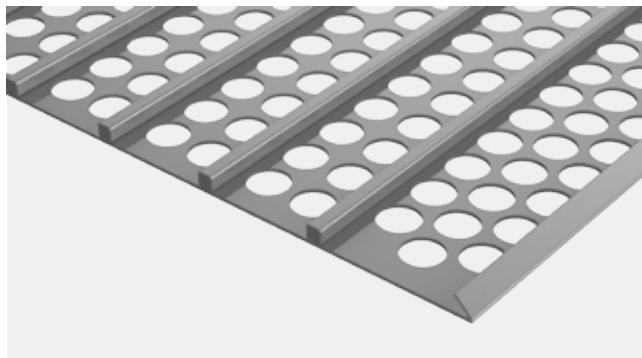


NUBA Screening Media provides perforated plates in a wide variety of materials. The most common materials we use to manufacture are those indicated below:

## Perforated Metal Plate Carbon Steel

### Characteristics

Carbon steel plates (hot rolled descaled steel) are the most used in quarrying and mining. They have high wear resistance properties and are easy to bend and stamp in cold process.



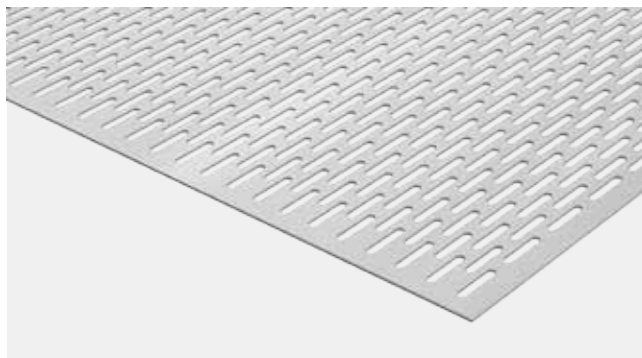
Steel type	Standard	Equivalence Nomenclature	C (%)	Mn (%)	P (%)	S (%)	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation Break (%)
Hot rolled descaled steel									
<b>DD-11</b>	EN-10111	Stw 22	≤ 0.12	≤ 0.60	≤ 0.045	≤ 0.045	≤ 440	170-360	≥ 28
<b>DD-12</b>	EN-10111	Stw 23	≤ 0.10	≤ 0.45	≤ 0.035	≤ 0.035	≤ 420	170-340	≥ 30
<b>S235 JR</b>	EN-10025	Stw 37	≤ 0.17	≤ 1.40	≤ 0.045	≤ 0.045	≥ 235	360-510	≥ 27
<b>S275 JR</b>	EN-10025	Stw 44	≤ 0.21	≤ 1.60	≤ 0.045	≤ 0.045	≥ 275	430-580	≥ 27
Cold rolled steel									
<b>DC01</b>	EN-10130	St 12	≤ 0.12	≤ 0.60	≤ 0.045	≤ 0.045	270-410	140-280	≥ 28

## Perforated Metal Plate Stainless Steel

### Characteristics

AISI 304 Stainless steel plates have excellent mechanical features, high wear resistance properties and high corrosion resistance.

AISI 316 Stainless steel is a molybdenum bearing stainless steel. It has the same mechanical features as AISI 304 but superior corrosion resistance when exposed to chemical corrosives such as sea water, brine solutions and the like.



Steel type	Equivalence	Standard	C (%)	Si (%)	Mn (%)	P max (%)	S max (%)	Cr (%)	Ni (%)	Mo (%)
<b>AISI 304</b>	EN 1.4301	EN 10088	≤ 0.07	≤ 1.00	≤ 2.00	0.045	0.030	17-19.5	8-10.5	-
<b>AISI 316</b>	EN 1.4401	EN 10088	≤ 0.07	≤ 1.00	≤ 2.00	0.045	0.030	16.5-18.5	10-13	2-2.50

## Perforated Metal Plate

### Wear-resistant steel

#### Characteristics

We manufacture customised perforated metal plate from extreme wear-resistant steel. This steel is made to withstand the toughest working conditions; it has a great combination of high hardness, high strength and good toughness.

HB 400 – 450 steels have high elasticity and resistance, being appropriate for bending, curving, machining and welding.

HB 500 steel supports intense wear and is appropriate for cases involving strong erosion by hard minerals and other abrasive materials.

HB 550 steel has a hardness of 550 Brinell and the tough-



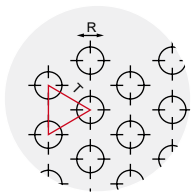
ness of 500, increasing wear life but maintaining flexibility to avoid cracking.

HB 600 steel has the highest wear resistance strength on the market. It is to support an extreme abrasion index.

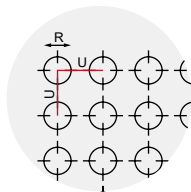
Laser and water jet cutting.

Steel type	Thickness	C max (%)	Mn max (%)	P max (%)	S max (%)	Tensile Strength (MPa)	Yield Strength (MPa)	Hardness (HB)
<b>HB-400</b>	3-20	0.15	1.6	0.025	0.010	1250	1000	370-430
<b>HB-450</b>	3-20	0.21	1.6	0.025	0.010	1400	1200	425-475
<b>HB-500</b>	4-30	0.29	1.6	0.025	0.010	1600	1250	470-530
<b>HB-550</b>	10-50	0.37	1.3	0.020	0.010	-	-	525-575
<b>HB-600</b>	8-30	0.45	1.0	0.015	0.010	-	-	570-640

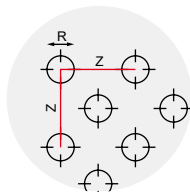
## Screening area calculation



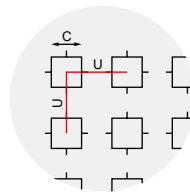
$$SL = 0,906 \times (R/T)^2$$



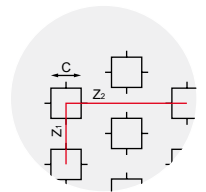
$$SL = 0,785 \times (R/U)^2$$



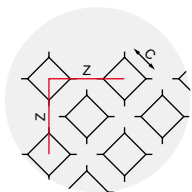
$$SL = 1,57 \times (R/Z)^2$$



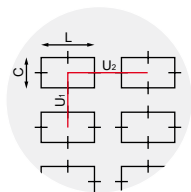
$$SL = (C/U)^2$$



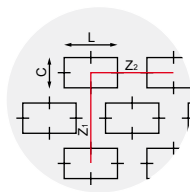
$$SL = 2C^2 \times Z_1 Z_2$$



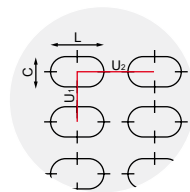
$$SL = 2 \times \left(\frac{CD}{Z}\right)^2$$



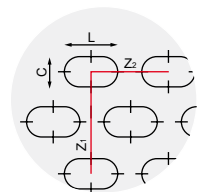
$$SL = 2 \frac{C \times L}{U_1 \times U_2}$$



$$SL = 2 \frac{C \times L}{Z_1 \times Z_2}$$



$$SL = 2 \frac{C \times L - 0,215 C^2}{U_1 \times U_2}$$



$$SL = 2 \frac{C \times L - 0,43 C^2}{Z_1 \times Z_2}$$



# Round perforations

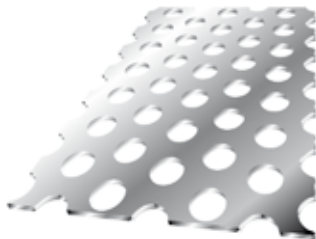
- Perforations: From 0,5 mm to 120 mm.
- Thickness: From 0,5 mm to 20 mm  
(according to perforation).
- Dimensions: Plates up to 2.000 mm wide  
(according to perforation).  
  
Rolled to 1.500 mm wide  
(according to perforation).

Please contact us for other available perforations.

R 1,5 T 3



R 3 T 5



R 5 T 7



R 10 T 14



## Perforated plates: Available standard dimensions 2.000 x 1.000 mm

R	T	%	Thickness											
			0,5	0,8	1	1,5	2	2,5	3	4	5	6	8	10
0,5	1,25	14,5	●											
0,5	1,5	10	●											
0,8	1,60	22,5	●											
0,8	1,75	19	●											
0,8	2	26		●										
1	2	23	●	●	●									
1,2	2,25	26			●									
1,5	3	23	●	●		●								
1,8	3	33	●	●	●									
2	3,5	30	●	●	▲	●	●							
2	4	23				●	●							
2,5	4	35	●	●	●	●								
2,5	5	23					●	●						
3	5	33	●	▲	▲	■	▲	■	▲					
3	6	23							●					
3,5	5	44	●	●	●	●								
3,5	6	31					●		●					
4	6	40	●	●	▲	▲	■							
4	7	30					▲	●		●				
5	7	46	●	●	▲	▲	■	■						
5	8	35			▲	▲	■	■	●	●	●			
6	8,5	44	●	●	▲	▲	■	■						
6	9	40			●	●								
6	10	33					▲	■	●	●	●	●		
7	10	44			●	●			●	●	●	●		
7	11	37					●		●	●	●	●		
8	11	48	●	▲	▲	▲	■	■	●	●	●	●		
8	12	40			▲	▲	■	■	●	●	●	●		
8	13	34											●	
8	15	26											●	
8	Aboc.	4,5					▲	●						
9	13	45	●		●	●								
9	14	37					●		●	●	●	●		
10	14	46	●	●	▲	▲	■	■	▲	●	●	●		
10	15	40				●	▲	■	▲	●	●	●	●	●
10	18	28											●	●
12	16	51			▲	▲	●							
12	17	45					▲	●	●	●	●	●		
12	20	32											●	●
14	19	49			●	●	●		●	●	●	●	●	●
14	20	44											●	●
15	18	63			●	▲	●							
15	22	42					▲	●	●	●	●	●		
15	24	35											●	●
15	Aboc.	22,5					▲	●						
16	20	58			●	●	●		●	●	●	●		
16	24	40											●	●
18	22,5	56			●	●								
18	25	47					●		●					
18	27	40								●	●	●	●	●
20	25	58			●	▲	●						●	●
20	27	49					■	■	●	●	●	●	●	●
20	30	40											●	●
22	28	56				●	●		●	●	●	●	●	●
25	34	49			●	●	●		●	●	●	●	●	●
28	35	58					●		●	●	●	●	●	●
30	37	60			●	●	●		●	●	●	●	●	●
30	40	51											●	●
35	46	52					●		●	●	●	●	●	●
40	50	58					●		●	●	●	●	●	●
45	60	51							●	●	●	●	●	●
50	62	59					●		●	●	●	●	●	●
60	75	58							●	●	●	●	●	●
70	75	58								●	●	●	●	●
80	96	62							●	●	●	●	●	●
90	112	58								●	●	●	●	●
100	124	58								●	●	●	●	●

● Mild steel 2.000 x 1.000      ■ Mild steel 2.500 x 1.250      ▲ Galvanised steel 2.000 x 1.000

# Round perforations used in mills

- Perforations: From 2 mm to 8 mm.
- Thickness: From 0,8 mm to 3 mm  
(according to perforation).
- Dimensions: Plates up to 1.500 mm wide  
(according to perforation).  
Rolled to 1.500 mm wide  
(according to perforation).

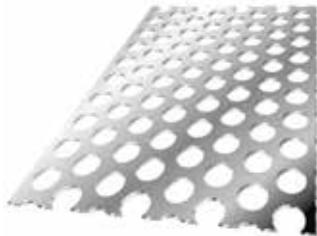
Please contact us for other available perforations.

## Perforated plates: Available standard dimensions 2.000 x 1.000 mm

R	T	%	Thickness				
			1	1,5	2	2,5	3
2	3	40	•	•	•		
2,5	3,5	46	•	•	•	•	
3	4	51	•	•	•	•	•
3,5	4,5	55		•	•	•	•
4	5,5	48		•	•	•	•
4,5	6	51		•	•	•	•
5	6,5	54		•	•	•	•
6	7,5	58			•	•	•
7	10	44					•
8	11	48					•

Mild steel plates

R 2,5 T 3,5



R 3 T4

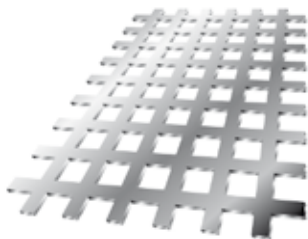


# Square perforations

- Perforations: From 3 mm to 120 mm.
- Thickness: From 0,5 mm to 5 mm  
(according to perforation).
- Dimensions: Plates up to 2.000 mm wide  
(according to perforation).  
  
Rolled to 1.500 mm wide  
(according to perforation).

Please contact us for other available perforations.

C5 U7,5



C8 U11



C10 U15



C10 U20



## Perforated plates: Available standard dimensions 2.000 x 1.000 mm

Ø C	U	%	Thickness				
			0,8	1	1,5	2	3
3	5	36		•	•		
5	7,5	44	•	•	•		
5	8	39		•	•	•	
8	11	53	•	•	•	•	
10	12	69		•	•		
10	13	59		•	•	•	
10	15	44		•	•	•	•
10	20	25		•	•	•	
15	20	56		•	•	•	•
15	30	25			•	•	
20	25	64		•	•	•	•
20	40	25		•	•	•	•
22	44	25		•	•	•	•
25	50	25			•	•	
30	35	73		•	•	•	•
30	60	25		•	•	•	•
40	50	64			•	•	•
40	80	25			•	•	•
50	100	25			•	•	•

Mild steel plates



## Slotted perforations

- Perforations: From 1 x 20 mm to 10 x 40 mm.
- Thickness: From 0,5 mm to 8 mm  
(according to perforation).
- Dimensions: Plates up to 2.000 mm wide  
(according to perforation).  
Rolled to 1.500 mm wide  
(according to perforation).

Please contact us for other available perforations.

**LR4 x 20 ZI**



**LR3 x 20 UII**



## Perforated plates: Available standard dimensions 2.000 x 1.000 mm

LR	Distance	Perforations layout	%	Thickness						
				1	1,5	2	3	4	5	6
1,5 x 20	4 x 26	U II	28,3		•					
2,5 x 20	5 x 26	U II	37,4	•						
3 x 20	6 x 26	U II	37,2		•	•				
3 x 20	14 x 26	Z I	32			•				
4 x 20	16 x 25	Z II	38,2	•						
4 x 20	16 x 25	Z I	38,2		•	•	•			
4 x 20	8 x 25	U II	38,2	•	•					
5 x 20	10 x 25	U II	37,8		•	•				
5 x 20	20 x 25	Z II	37,8		•					
5 x 20	20 x 25	Z I	37,8	•	•	•	•			
6 x 25	22 x 31	Z I	39,4							
6 x 30	26 x 37	Z I	33		•					
7 x 20	12 x 26,5	U II	40,7		•					
8 x 40	13 x 47,5	U II	49,5		•	•				
8 x 40	26 x 47,5	Z II	49,5			•				
10 x 40	20 x 50	U II	34,85			•				

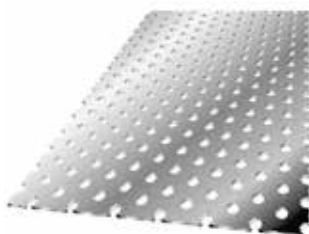
Mild steel plates

## Round perforations in stainless steel plates

- Perforations: From 0,4 mm to 120 mm.
- Thickness: From 0,4 mm to 12 mm  
(according to perforation).
- Dimensions: Plates up to 2.000 mm wide  
(according to perforation).  
Rolled to 1.500 mm wide  
(according to perforation).

Please contact us for other available perforations.

**R 1 T 2,2**



**R 2 T 3,5**



**R 4 T 6**



### Perforated plates: Available standard dimensions 2.000 x 1.000 mm

R	T	%	Thickness									
			0,4	0,5	0,6	0,8	1	1,5	2	3	4	
0,4	1,5	6	•									
0,5	1,5	10	•	•								
0,6	1,5	15	•									
0,8	1,75	19		•	•							
0,8	2	15				•						
1	2	23					•					
1	2,2	19		•		•						
1,2	2,25	26				•	•					
1,5	3	23		•		•	•	•				
2	3,5	30					•	•	•			
2	4	23							•			
2,5	4	35					•	•	•			
2,5	5	23						•	•	•		
3	5	33					•	•	•	•		
3	6	23								•		
3	6									•		
3,5	6						•		•			
4	6	40		•			•	•	•			
4	7	30							•	•	•	
5	7	46					•	•	•			
5	8	35							•	•	•	
6	8,5	45					•	•	•			
6	10	33							•	•	•	
7	10						•					
8	11	48					•	•	•			
8	12	40					•		•	•	•	
8	emb. 47,5								•			
10	14	46					•	•	•			
10	15	40							•	•	•	
12	16	51					•	•	•			
12	17	45							•	•	•	
15	18	63					•	•	•	•	•	
15	22	42							•	•	•	
15	emb. 30								•			
20	27	50									•	

• AISI 304  
2.000 x 1.000

■ AISI 316 L  
2.500 x 1.250