Progress®
Industry Group

CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

Grupa Przemysłowa Progress
Kielce, Poland
Progress International Sp. z o.o.
Progress Eco S.A.
Wytwórnia Sit Progress S.J., J. Sawicz, J. Krzysztoszek

has been approved by Lloyd's Register Quality Assurance to the following Quality Management System Standards:

ISO 9001:2000

The Quality Management System is applicable to:

Design and manufacture of welded slotted screens, welded sieves of bars and wires, perforated and wattled sieves and products with their application designated for machines and facilities for screening, elutriation, dewatering, segregation and filtration. Manufacture of products using water-jet method.

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

Approval
Certificate No: GDK9900076

Original Approval: 28th November 1996
Current Certificate: 22nd November 2002
Certificate Expiry: 30th November 2005

Issued by: LRQA Gdańsk

UKAS QUALITY MANAGEMENT 001

This approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA.
The use of the UKAS Accreditation Mark indicates Accreditation in respect of those activities covered by the Accreditation Certificate Number 001

LLOYD'S REGISTER QU

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Wytwórni

Locations

P.K.P.P.H. Progre
Kielce, Poland

Progress Eco S.A
Dobrów k. Tucze

Wytwórnia Si
J. Sawicz, J.
Zakład Proc
Furmanów

Wytwórnia
J. Sawicz,
Zakład P
Trzuskav

Approv
Certifi

001

”PROGRESS”
WELDED SLOTTED SIEVES

Over 15 years of experience
in designing and production
of industrial sieves

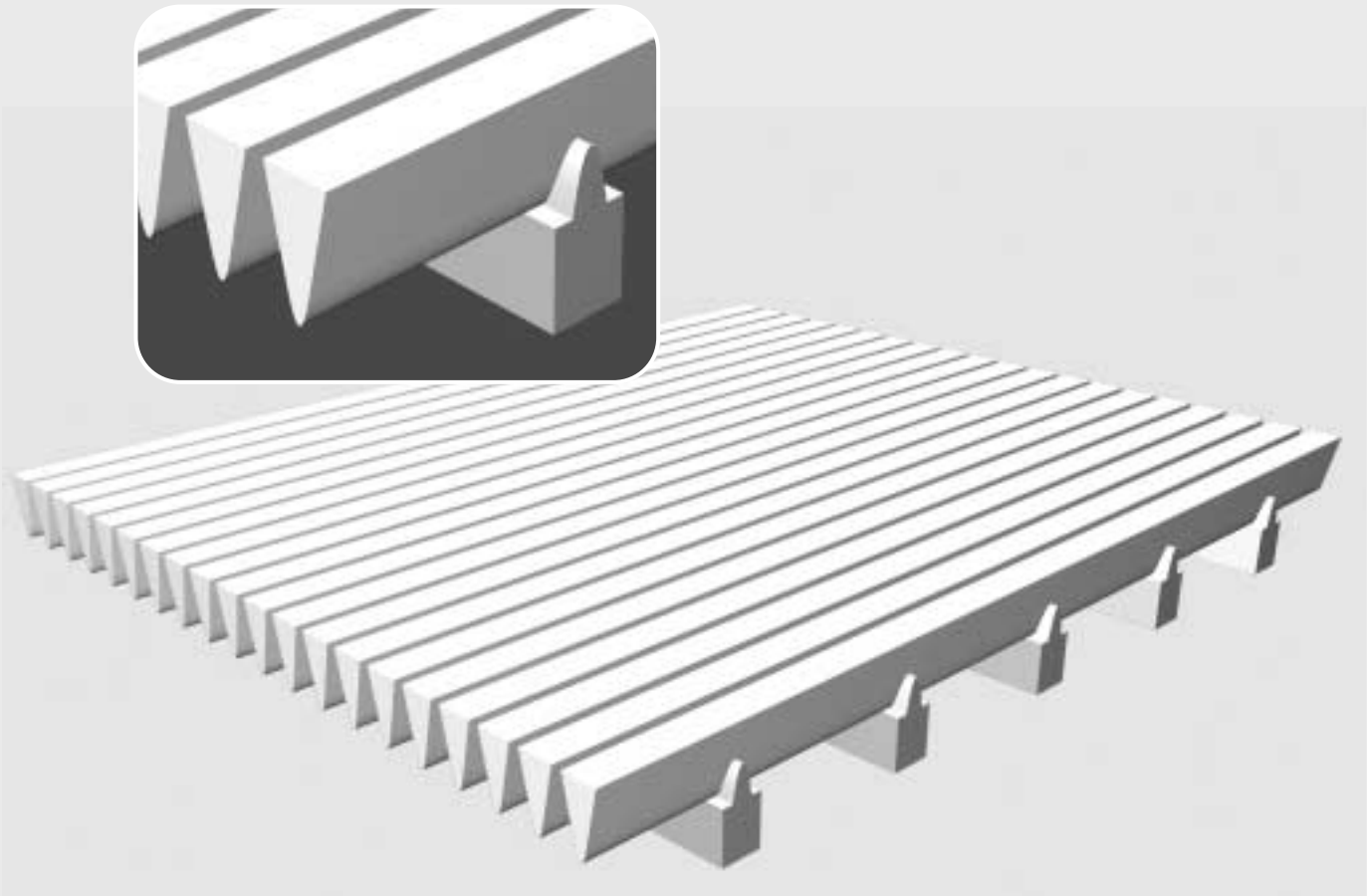
PROGRESS SLOTTED SIEVES

PROGRESS welded slotted sieves are the most modern products of contemporary technology used for separation. They are produced according to the newest method of electro-resistant welding and meet the most strict quality requirements. Their structure and technology is elaborated with the thought of our client and consideration of the client's requirements.

The production technique comprises welding of specially profiled working wires to a system of structural wires supporting them at crosses. As a result extremely rigid sieves capable of carrying considerable loads are made. This novel technique simultaneously allows high precision in the distribution of working wires and precise size of the slots. We guarantee standard tolerances for our products and meet the quality control requirements according to procedures and instructions of **Quality Assurance System ISO 9001.**

The implementation of slotted welded sieves reduces costs connected with the equipment operation by providing:

- **High capacity**
- **Long lifetime of exploited equipment**
- **reduction of repair and maintenance costs**

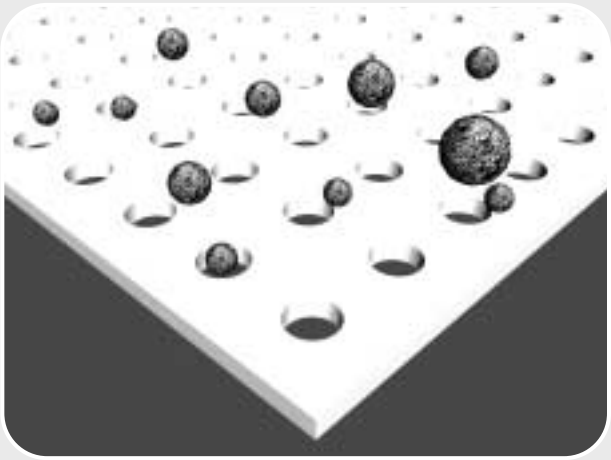


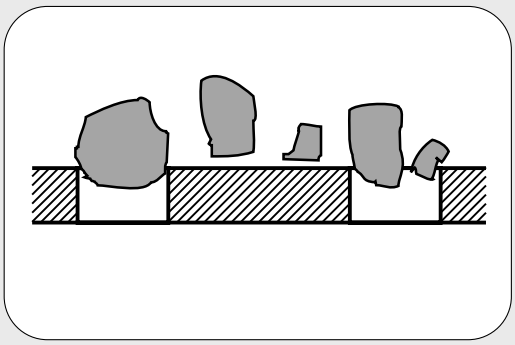
PERFORATED AND WOVEN SIEVES

Thanks to their advantages, welded slotted sieves in some industries replace perforated and woven sieves used so far.

Perforated sieves of high strength, on the other hand, are characterised with:

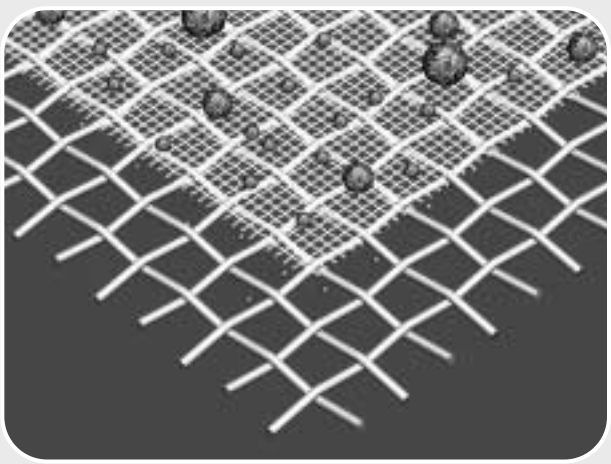
- low open space factor
- high cost in case of sieves for small particles separation
- vulnerability to clogging

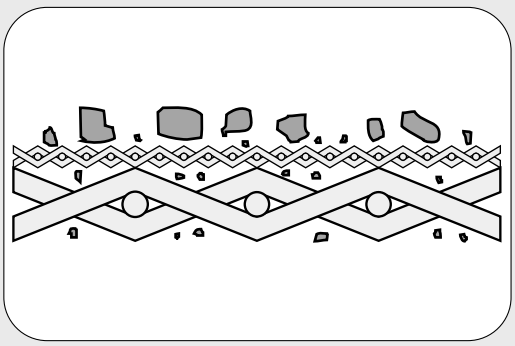




Woven sieves, working mainly in double system: structural screen with sorting sieve, are characterised by:

- low open space factor
- shorter life resulting from mutual impact of both surfaces , which accelerates the abrasion of sieves
- uneven surface causing turbulence
- high maintenance cost consequent on frequent replacement of worn out parts

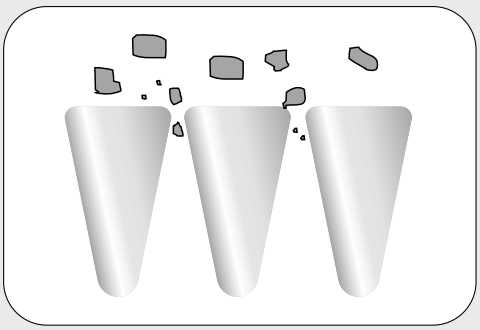


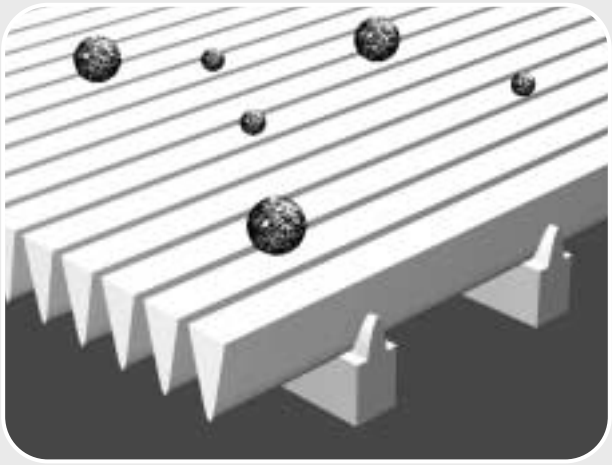


PROGRESS SLOTTED SIEVES

"PROGRESS" welded slotted sieves are characterised with;

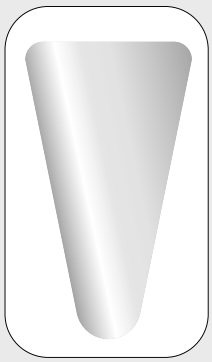
- capability to carry considerable loads
- high factor of open surface
- low vulnerability to clogging
- ideally smooth and flat surface
- increased capability and precision of separation and de- watering

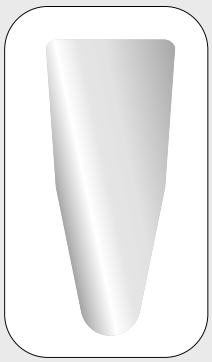


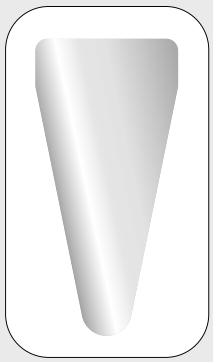


High open surface factor and the strength parameters are achieved by selection of:

- properly sized profiled wires
- properly sized working wires (type Q)
- profile shapes (type Sb, Sbb or special wires)
- material rating







Working wires of Sb type

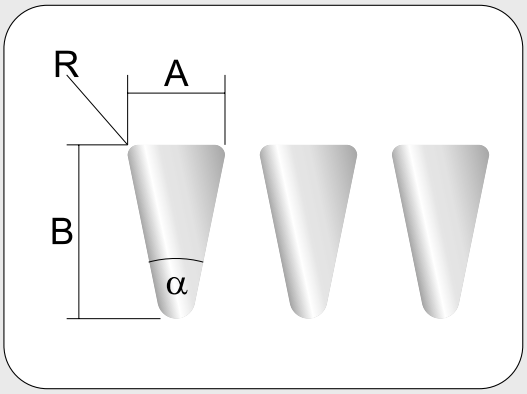
(V shaped) prevent the sieve clogging, since the separated material contacts the working wires only in two extreme points

Working wires of Sbb type and special wires

Separate highly abrasive materials, since during their operation the slot width does not increase considerably along with the abrasion of working surface. They are ideal for cylinder and conical sieves used in vibration centrifuges. They increase the sieve's life and prevent its clogging

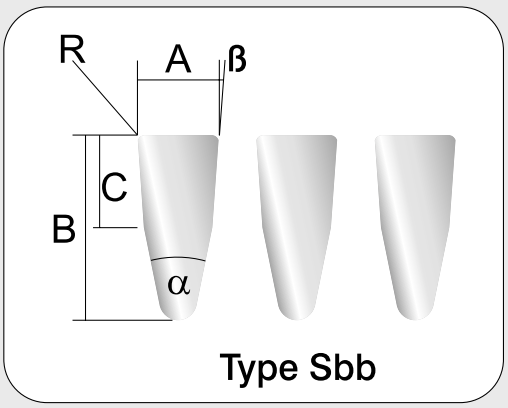
PROFILED WIRE SIZES

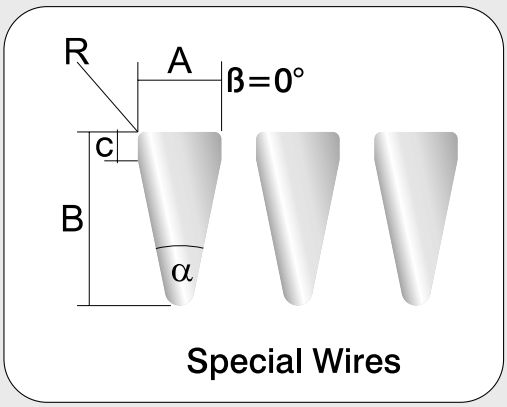
Sb TYPE



Profile	A (mm)	B (mm)	R (mm)	α (°)
12 Sb	1,0±0,01	2,0±0,01	0,3 max	23±1
18 Sb	1,5±0,01	2,5±0,01	0,3 max	23±1
22 Sb	1,8±0,02	3,7±0,01	0,3 max	23±1
28 Sb	2,2±0,02	4,5±0,01	0,3 max	23±1
34 Sb	2,8±0,02	5,0±0,01	0,3 max	23±1
42 Sb	3,4±0,02	6,5±0,01	0,3 max	23±1

Sbb TYPE AND SPECIAL WIRES





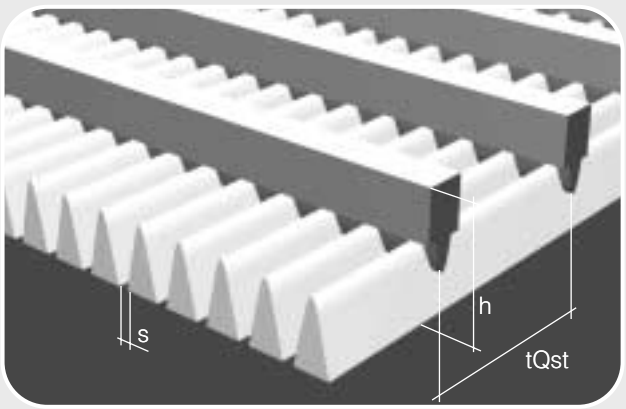
Profile	A (mm)	B (mm)	C (mm)	R (mm)	α (°)	β (°)
34 Sbb	2,2±-0,02	5,0±-0,1	2,5±-0,1	0,2 max	23±-1	4
42 Sbb	2,8±-0,02	6,5±-0,1	3,0±-0,1	0,2 max	23±-1	4
2,4x5,0	2,4±-0,02	5,0±-0,1	0,8±-0,1	0,2 max	23±-1	0
3,0x6,5	3,0±-0,02	6,5±-0,1	1,0±-0,1	0,2 max	23±-1	0

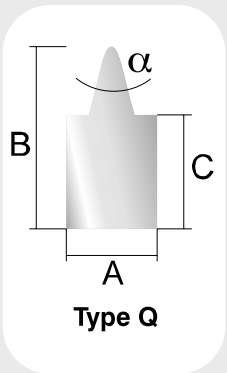
Inne rozmiary drutów profilowych

SHEET PARAMETERS

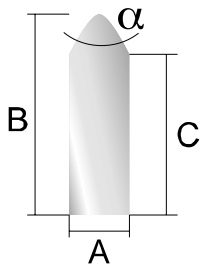
Sheet structural dimensions

Profile/bar	h (mm)	tQst (mm)	s (mm) min.
12 Sb/Q25	4,2	30	0,01
18 Sb/Q35	5,8	30	0,02
22Sb/Q35	6,8	30	0,02
22Sb/Q55	9,7	30	0,05
28Sb/Q55	10,0	30	0,1
34Sb/Q55	10,3	50	0,1
34Sb/10x3	12,3	50	0,2
34Sbb/Q55	10,3	50	0,2
34Sbb/10x3	12,3	50	0,2
42Sb/Q55	11,5	50	0,2
42Sbb/Q55	11,5	50	0,2
42Sbb/Q53	8,0	30	0,2
42Sbb/34Sb	8,5	50	0,2
2,4x5/Q55	10,3	40	0,15
3x6,5/Q55	11,5	50	0,2





Type Q



Type 10x3

Structural wires dimensions

	A (mm)	B (mm)	C (mm)	α (°)
Q 25	2,0±-0,03	3,0±-0,1	2,0±-0,1	50±-2
Q 35	3,0±-0,03	5,0±-0,1	3,7±-0,1	20±-2
Q 53	5,0±-0,05	3,0±-0,15	1,0±-0,1	50±-2
Q 55	4,0±-0,06	8,0±-0,2	5,0±-0,1	30±-2
10x3	3,0±-0,04	10,0±-0,2	8,0	22±-2
34 Sb	2,8±-0,02	5,0±-0,1	0	23±-1

USED STAINLESS STEEL TYPES

AISI 430 (17% Cr) according to Polish Standard PN H17

Ferritic steel, which in limited applications offers higher resistance to corrosion. It is used mainly in the nitric acid industry, food industry, construction and for the production of home appliances.

AISI 304 (18% Cr, 10% Ni) according to Polish Standard PN 0H18N9

Austenitic steel of good resistance to corrosion. In is used in working parts in the chemical and pharmaceutical industry and paint production as well as in elements exposed to preservative's (salts) aggression in food industry

AISI 321 (18% Cr, 9% Ni, 0,6%Ti) according to Polish Standard PN IHI 8N9T

Austenitic steel stabilised with titan, used for welded equipment in the chemical industry such as: heat exchangers, absorbing towers, tanks for acids, in equipment for the paint and pharmaceutical industry, for parts of machinery working in acid waters and as in elements exposed to preservative's (salts) aggression in food industry

AISI 316 (18% Cr, 10% Ni, 2%Mo) according to Polish Standard PN 0H17NI 3M2T

Austenitic steel containing molybdenum provides good resistance to corrosion and abrasion. Used for working parts in environment containing some chlorides or of high risk of inter -crystal corrosion

type / profile	AISI 430	AISI 304	AISI 321	AISI 316
12 Sb	□	●	●	□
18 Sb	□	□	●	□
22 Sb	□	●	●	□
28 Sb	●	●	●	□
34 Sb	●	●	●	●
42 Sb	●	●	●	□
34 Sbb	●	●	□	□
42 Sbb	●	●	□	□
2,4x5,0	□	●	□	●
3,0x6,5	□	□	□	●
Q 25	□	●	●	□
Q 35	□	●	●	□
Q 53	●	□	□	□
Q 55	●	●	●	●
10x3	●	□	□	●

● most common profiles □ profiles for special orders

Inne rozmiary drutów profilowych

ACTIVE SURFACE

The sieve's most important parameter is the open surface factor
Active surface F 0 (%) - relation of the slots surface to the total screen surface, calculated according to the following formula:

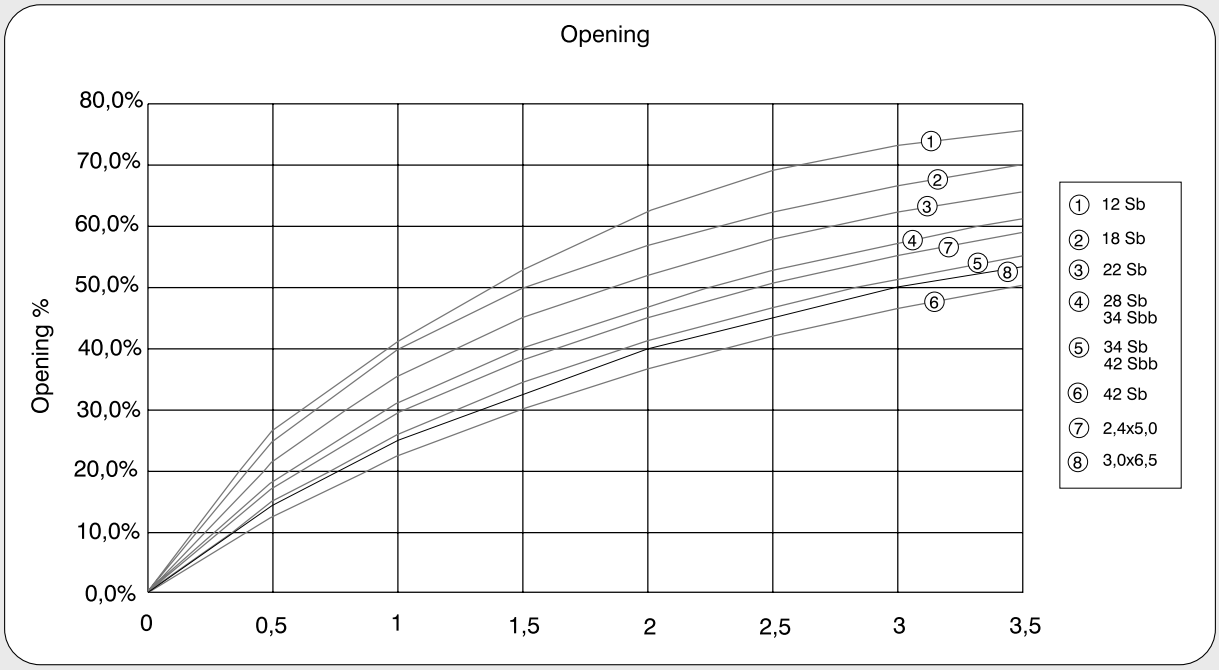
$$F_0 = s/(s+a) \times 100\ (\%)$$

a – profile width (according to profile table)
s – slot width

Example:

A sieve made profile 28Sb, with slot s=0,24mm

$$F_0 = 0{,}24/(0{,}24+2{,}2) \times 100\% = 9{,}6\%$$

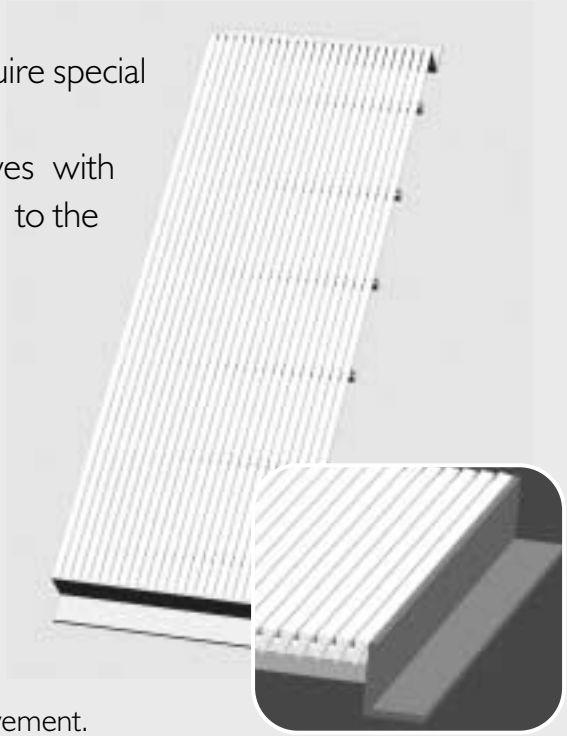


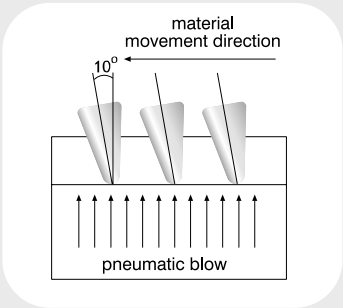
profile \ S (mm)	0,1	0,2	0,5	0,75	1	1,5	2	3
12 Sb	9,1%	16,6%	33,3%	42,8%	50,0%	60,0%	66,7%	75,0%
18 Sb	6,3%	11,8%	25,0%	33,3%	40,0%	50,0%	57,1%	66,7%
22 Sb	5,3%	10,0%	21,7%	29,4%	35,7%	45,5%	52,6%	62,5%
28 Sb	4,3%	8,3%	18,5%	25,4%	31,3%	40,5%	47,6%	57,7%
34 Sb	3,4%	6,7%	15,2%	21,1%	26,3%	34,9%	41,7%	51,7%
42 Sb	2,9%	5,6%	12,8%	18,1%	22,7%	30,6%	37,0%	46,9%
34 Sbb	4,3%	8,3%	18,5%	25,4%	31,3%	40,5%	47,6%	57,7%
42 Sbb	3,4%	6,7%	15,2%	21,1%	26,3%	34,9%	41,7%	51,7%
2,4x5,0	4,0%	7,7%	17,2%	23,8%	29,4%	38,5%	45,5%	55,6%
3,0x6,5	3,2%	6,3%	14,3%	20,0%	25,0%	33,3%	40,0%	50,0%

FLAT AND ARCH SIEVES

Flat sieves can be divided into three categories according to their application:

- **sieves working in dynamic systems** - panels to be encased in vibrating sieves
- special reinforcement depending on the sieve load is necessary
- special finishing, guaranteeing secure and rigid fastening of the panel to the sieve frame
- edges customised to the needs
- **working in static systems** - do not require special reinforcement
- **working in special systems** - sieves with profiled wires welded at the proper angle to the structural wires





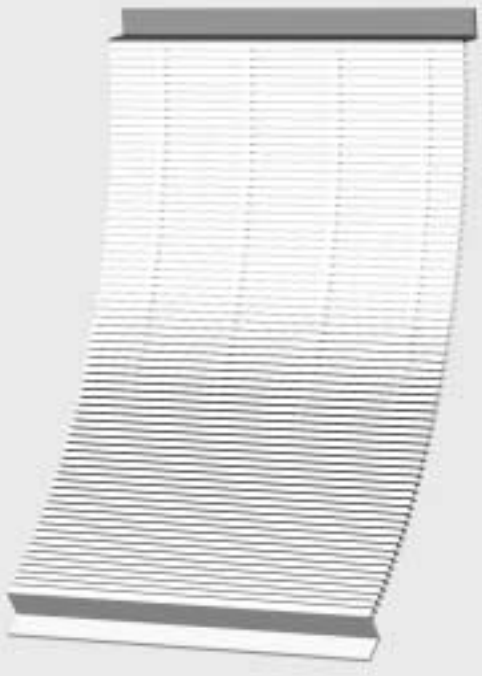
- the flow rate depends on the slot size. The material separation scale depends on the inclination angle. The inclination angle $\beta = 0\text{-}15°$ (standard $\beta = 10°$).

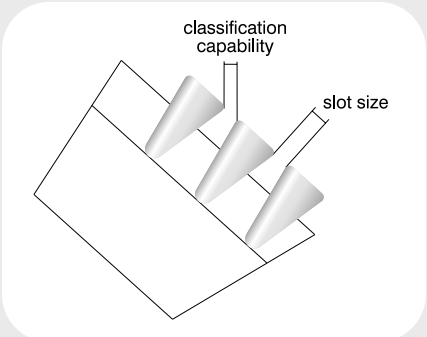
Sieves used in clarifiers with pneumatic material movement.

Arch sieves

The application of arch sieve in static systems causes:

- uniform flow onto the sieve (utilisation of the whole sieve surface)
- high speed of the flow onto the sieve
- increased classification effectiveness





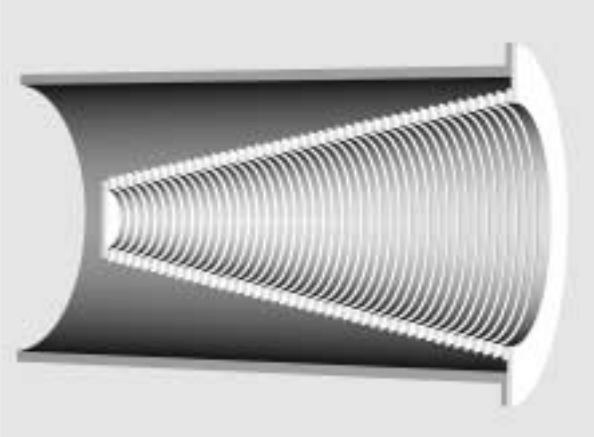
CONICAL SIEVES

Conical sieves can be divided into two categories depending on their work character:

working in dynamic systems - for all kinds of centrifuges, dynamically weighted:
- with self supporting structure consisting of ribs, rings, flanges which constitute an integral part of the sieve. After a period of exploitation the whole basket has to be replaced.
- without the supporting structure - as sieving elements for non disposable structural frames . The only thing to be replaced is the sieving element.

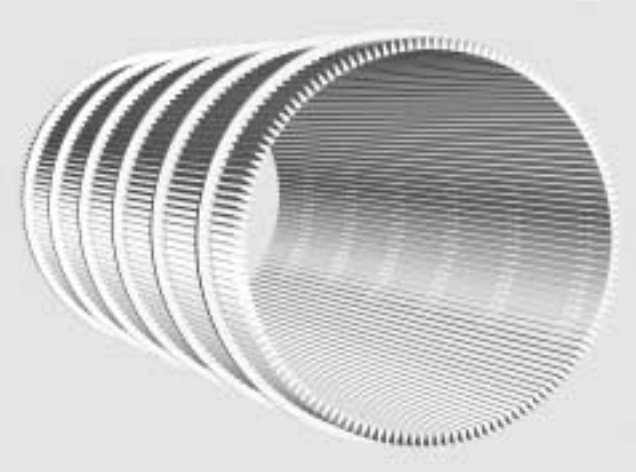
Working in static systems

Centrifugal de-watering screens

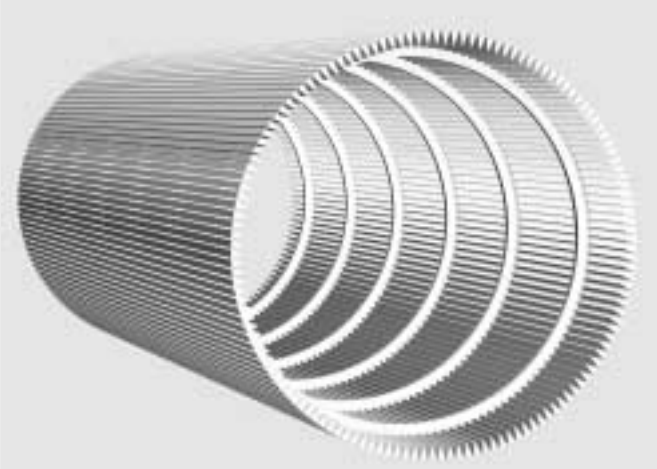


Filtrating elements for pipelines

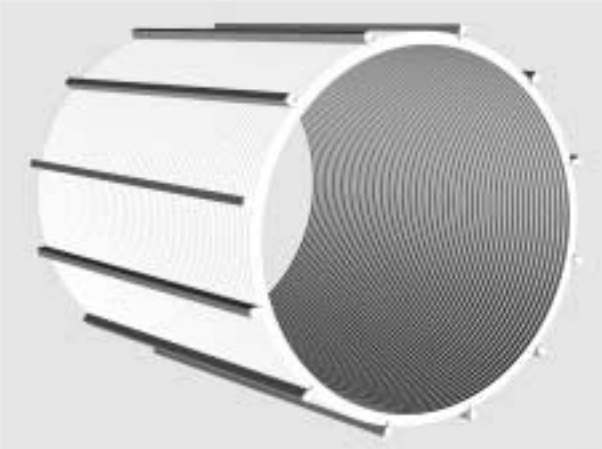
CYLINDER AND GUTTER SIEVES



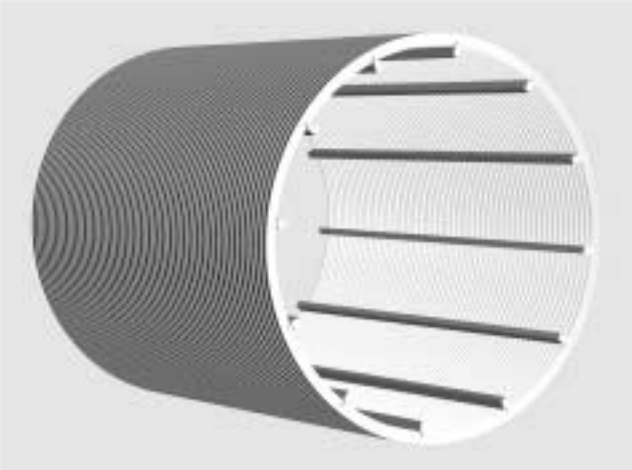
RW – slot parallel to the axis, inflow from the inside



RZ – slot parallel to the axis, inflow from the outside



OW – circumferential slot, inflow from the inside



OZ – circumferential slot, inflow from the outside

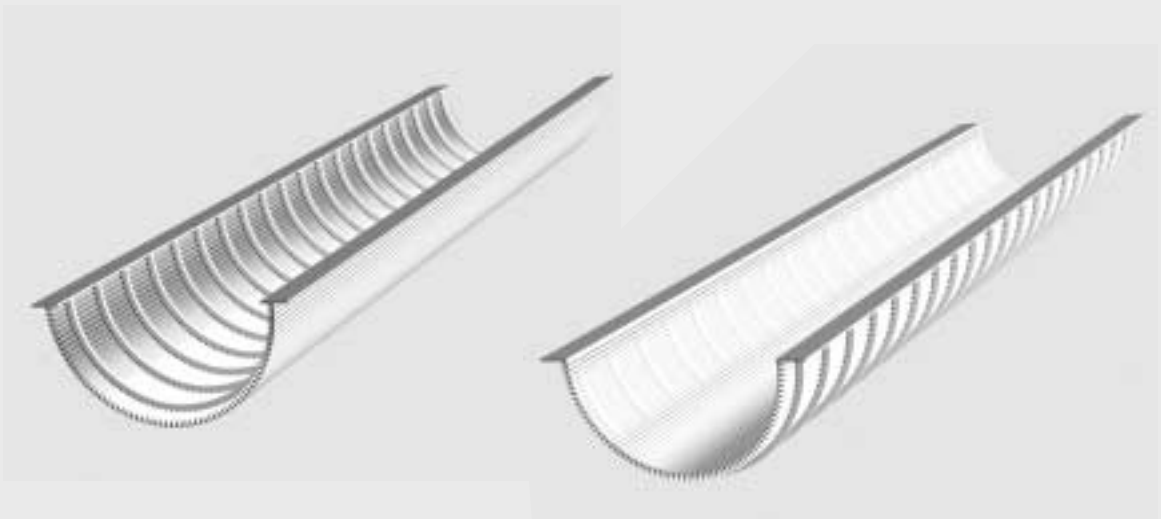
Example:

Cylinder sieve of RW type
Ø300x500x0,5 - 28Sb/Q55-304

Ø300 (mm) characteristic diameter measured to the working surface of the sieve
500 (mm) cylinder length
0,5 (mm) slot
28Sb profiled wire
Q55 supporting wire
304 material grade according to AISI

Gutter sieves:

Use: bottoms of screw conveyors, in which, technique of de-watering or separation is required apart from transporting.



Example:

Gutter sieve of RW type
R 200x500x0,5x60° - 28Sb/55Q-304

RW type, slot parallel to the axis, inflow from the outside
R200 (mm) characteristic radius measured to the working surface of the sieve
500 (mm) gutter sieve length
0,5 (mm) slot
60° gutter sieve opening angle
28Sb profiled wire
Q55 supporting wire
304 material grade according to AISI

APPLICATION

PROGRESS welded slotted sieves are widely used numerous industries:

- **coal mining**
- **petrol and gas industry**
- **metallurgy and coke engineering**
- **power industry**
- **construction industry**
- **cement and lime industry**
- **road and bridges construction**
- **chemical industry (production of reagents, fertilisers, pharmaceutical products)**
- **cellulose and paper industry**
- **fruit and vegetable processing**
- **meat processing**
- **sugar industry**
- **tobacco industry**
- **brewing industry**
- **other...**

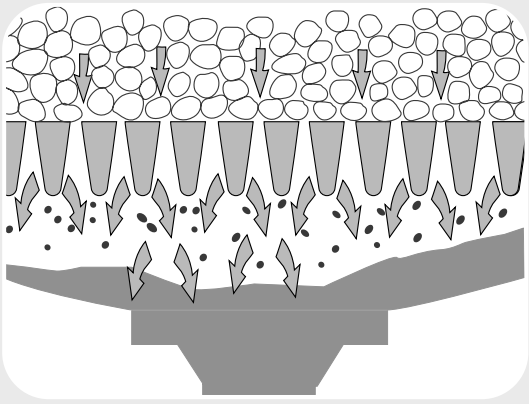
They are used for:

- **sieving**
- **filtration**
- **de watering**
- **drying**
- **segregation**
- **treatment**

General advantages:

- **low pressure drop**
- **self-cleaning ability**
- **high effectiveness**
- **precision in filtration**

Basket shaped filtering element



Sieving bottom in filtration tanks

PROGRESS Industrial Group consists of companies, which present machines and equipment with slotted sieves in their commercial offer.

• non-service, serviced filters and side access filters of selectiveness starting from 0,1mm for any pipeline dimension • slotted filtrating elements in pipelines as well as existing filters of supply, network, cooling and lubricating water, condensate ,distillate and oil of selectiveness starting from 0,2mm • complete drum separators or arch screens with slotted sieves for mechanical pre-treatment of liquid media (e.g. in treatment plants for fluming water, after pressing water, wastes from fruit and vegetable industry and in waste water treatment plants) • backing-off vibrating screens of Vibrecon type used for loose materials segregation or for milk of lime treatment • technical sieving elements for equipment used in the sugar industry (e.g. vertical and horizontal • Ø900mm presses, pressured pulp and Maya catchers, screw conveyors, Mick slackers, high effectiveness squeezing machines, beet root washers and stone catchers • technical sieving elements for the chemical industry equipment (e.g. screens, contact apparatus, milk of lime distillers, BOHLE and oscillating granulators) • sieving elements for the brewing industry equipment (e.g. wort filtration tanks, dampers, Salladin cages or grain sorting machines) • machinery and equipment in food and agriculture industry (e.g. inspecting and feeding conveyors, platform augers, calibrators, washers and fruit stalks removers) • perforated and woven sieves

ENQUIERY

Company name:

Adress:

Phone:. **fax**
e-mail: **http:**

Branch:

Leading person:
Post:

Where do you know the PROGRESS sieves from:

- ☐ fair
- ☐ brochures
- ☐ our representative's visit
- ☐ previous contacts
- ☐ experience of users in another branch
- ☐ other

Your needs

- ☐ flat sieves
- ☐ flat braced sieves
- ☐ arch sieves
- ☐ cylinder gutter sieves
- ☐ conical sieves
- ☐ other according to a drawing

Use

- ☐ sieve replacement due to wearing out
- ☐ substitution of woven or perforated sieves
- ☐ new application

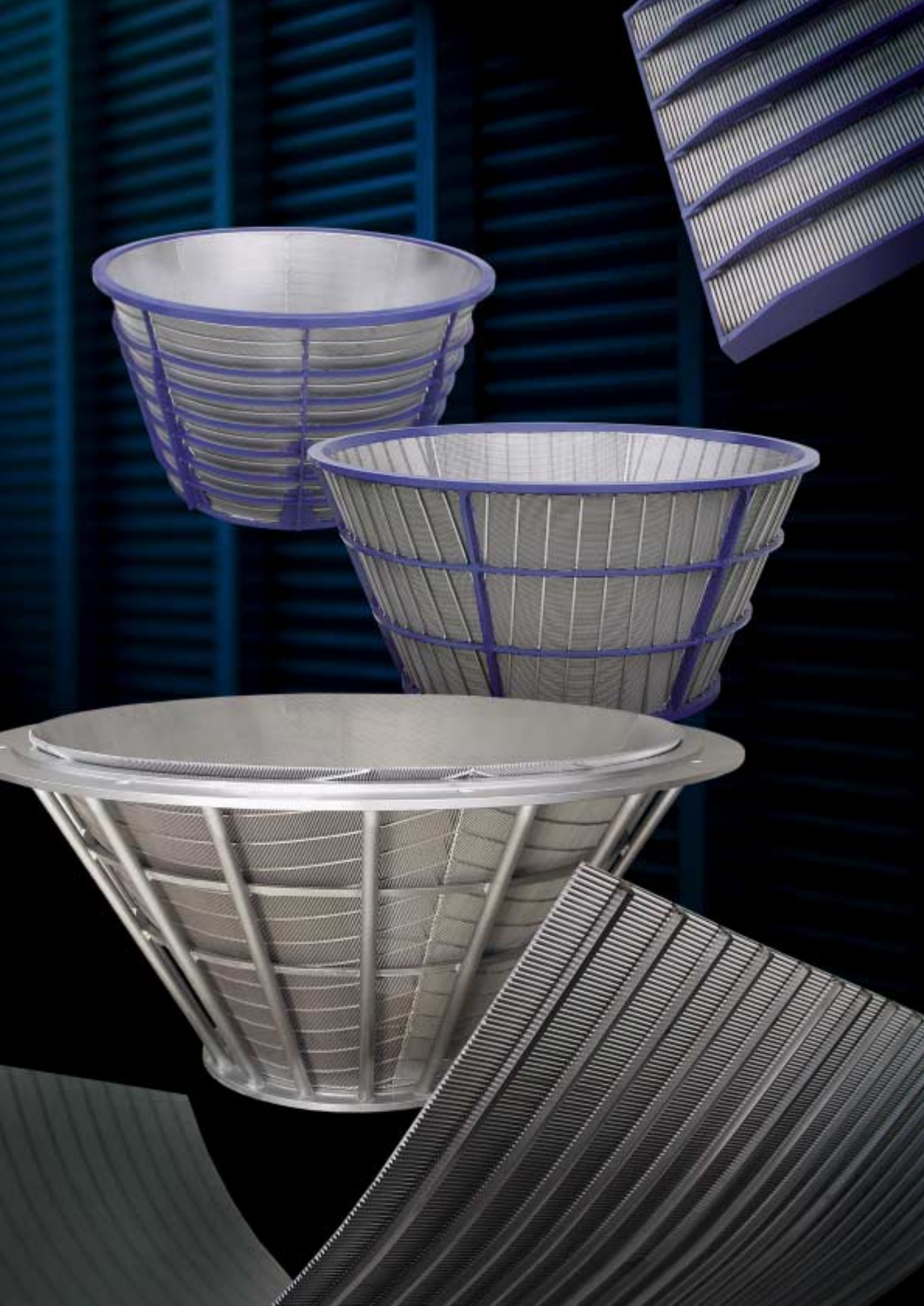
Sieve parameters

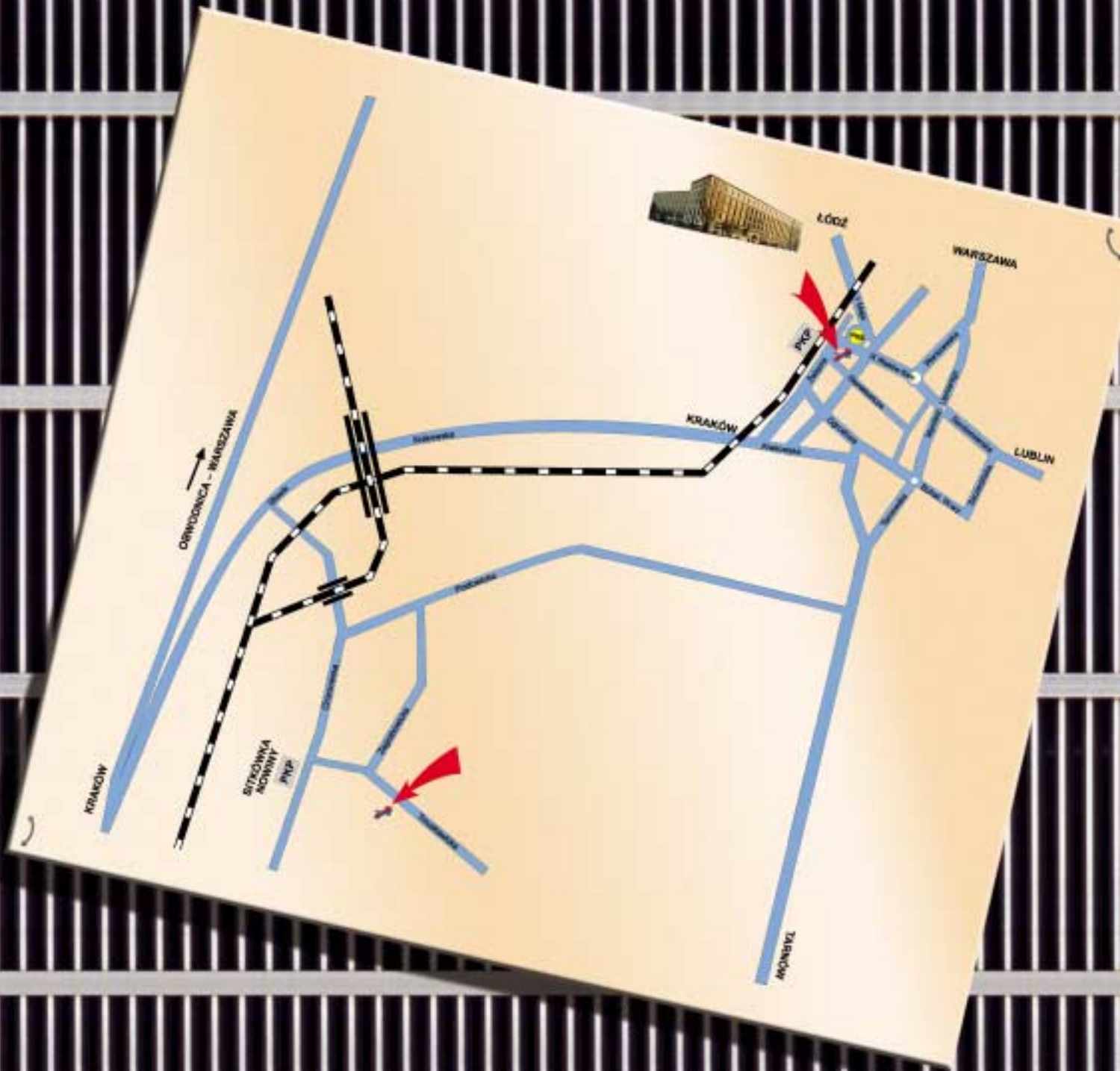
Dimensions:
Profile:
Slot:
Material:
Number:

Type and way of bracing (finishing):

Work type: ☐ static, ☐ dynamic

Method of sieve assembly/encasement (description or sketch)





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