REFERENCE · ADEN WEDGE WIRE

Wire Profile & Design Reference

AW and AWD wire profile series, AS and AST support rod series, and the eleven-point inspection protocol applied to every screen.

ISO 9001:2015 · ISO 10002

ADENWEDGEWIRE.COM

CONSTRUCTION

Two components, welded into a filtration lattice.

Every wedge wire screen is built from two distinct profiles. V-shaped wire (AW and AWD series) forms the filtration face. Support rods (AS and AST series) run perpendicular to the wire, carrying the structural load and fixing slot position. Resistance welding fuses the two at every intersection.

Non-clogging slot geometry

The slot widens toward the back of the wire. Particles that just fit the slot pass through without jamming; larger particles roll off the face. Backwash or CIP cleans the screen because debris cannot wedge tighter as it moves through.

High open area

With wire widths from 1.00 mm, open area reaches **65 %**, against 25–40 % for perforated plate. The open area translates directly into flow capacity at a given pressure drop, lowering pump duty or reducing screen face area.

Structural rigidity

The V-profile's depth stiffens the screen face against pressure differentials and mechanical loads without a heavier support frame. Looped-wire construction multiplies this for heavy-duty mining service.

Repeatable slot accuracy

Resistance welding sets wire pitch at a tolerance typically within **±5 %** of the nominal slot value. Measurement is verified with feeler gauges at multiple points on the finished screen — see the inspection protocol on page 5.

Open area calculation

$$\text{Open area} = \text{slot} / (\text{slot} + W)$$

slot
Aperture between adjacent wires, measured at the narrowest point (mm).

W
Wire-top width — the top face of the V-profile (mm). Values given in the AW series tables on the next page.

Worked example

A 0.5 mm slot with **AW 28** (W = 2.20 mm):

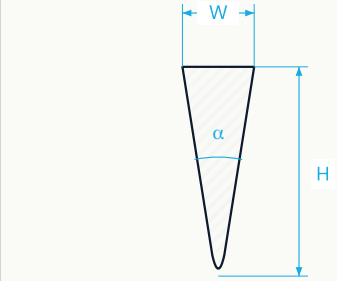
OA = 0.5 / (0.5 + 2.20) = **18.5 %**

Support rod spacing and width reduce effective open area at each wire–rod intersection; effective open area is typically 3–8 % below the gross figure depending on support pitch. The design tools on our website (Open Area Calculator, Cylinder Design Tool, Flow Rate Calculator) compute the net value including support corrections.

V-wire profiles — single-angle and dual-angle geometries.

AW Series · Single-Angle Wedge Wire

One inclined face · α 20°–33.8°

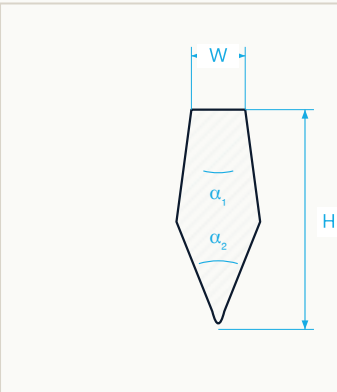


PROFILE	W (MM)	H (MM)	A
AW 12	1.00	2.50	20°
AW 18	1.60	3.00	23°
AW 28	2.20	4.50	23°
AW 34	2.80	5.00	23°
AW 42	3.40	6.50	23°
AW 50	5.00	7.50	33.8°

When to specify. The default wedge wire geometry. AW 12–42 use a 20–23° angle for structural rigidity across a broad slot range — water treatment, food processing, chemical filtration. AW 50 widens the angle to 33.8° for higher open area where fine particle blinding is the primary risk, common in water intake and Coanda hydropower screens.

AWD Series · Dual-Angle Wedge Wire

Compound angle · $\alpha_1 + \alpha_2$



PROFILE	W (MM)	H (MM)	A
AWD 32	2.50	5.00	32.7°
AWD 42	3.40	6.50	33.8°

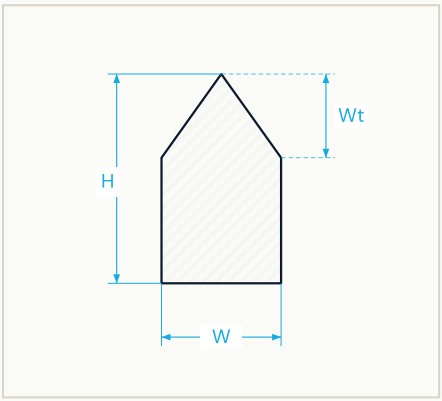
When to specify. Compound-angle profile combining a narrow upper section (less blinding) with a wider lower section (more structural). Specified where fine particles might otherwise lodge in a single-angle slot, or where higher open area is required without sacrificing wire stiffness.

Support rods — pencil or triangle contact geometry.

The support rod geometry controls the contact footprint at each wire-to-rod weld. AS pencil rods minimise the footprint and maximise effective open area; AST triangle rods broaden it for higher weld strength.

AS Series · Pencil Wedge Wire

Pointed contact surface

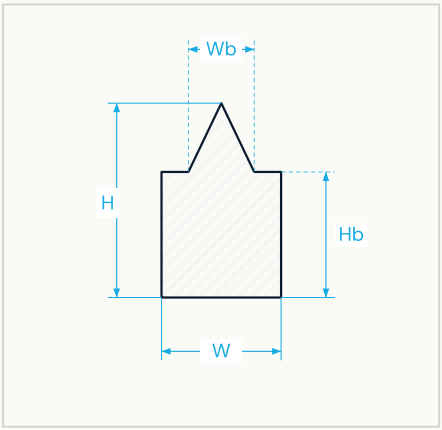


PROFILE	W (MM)	H (MM)	WT (MM)
AS 20	2.00	4.50	1.80
AS 22	2.00	5.80	1.80
AS 30	3.00	7.50	2.53

When to specify. Minimises the contact area between wire and support, keeping effective open area close to the gross figure. Standard for cylindrical and flat screens where throughput per unit area is the driving constraint.

AST Series · Triangle Wedge Wire

Wide contact surface



PROFILE	W (MM)	H (MM)	WB (MM)	HB (MM)
AST 33	4.00	3.00	2.13	1.00
AST 35	4.00	6.35	2.40	4.30

When to specify. Broader contact area delivers stronger weld joints for heavy-load screens. Specified for looped-wire mining screens, vibrating decks, and any application where mechanical stress at the intersection dominates the design.

QUALITY CONTROL

Eleven checkpoints from raw wire to shipment.

Every screen passes through this inspection sequence before leaving the manufacturing floor. Measurement methods, equipment, and timing are fixed per our ISO 9001:2015-certified quality management system.

#	PARAMETER	METHOD	WHEN
01	**Material composition**	XRF spectroscopy; mill certificates	Before production
02	**Wire cross-section**	Dimensional measurement against profile specification	Before welding
03	**Weld penetration**	Visual and destructive sample testing	During production
04	**Slot aperture**	Precision feeler gauges at multiple points	During & after
05	**Overall dimensions**	Length, diameter, and width measurement	Final inspection
06	**Roundness**	Deviation measurement on cylindrical screens	Final inspection
07	**Flatness**	Surface deviation on flat panels	Final inspection
08	**Surface condition**	Visual inspection for defects and finish quality	Final inspection
09	**Wire spacing accuracy**	Precision measurement at multiple points	After production
10	**Open area percentage**	Calculation verified by flow testing	Design verification
11	**Material composition (final)**	XRF spectroscopy, mill certificates, customer report	Before shipment

DOCUMENTATION

What ships with every screen.

Three documents accompany every delivery. Application-specific formats (CE, ASME, FDA, 3-A, NACE, client-specific) are prepared on request at the start of production.

Certificate of Conformity

COC

Issued for every screen manufactured. One page per batch. Confirms that the delivered screen matches the approved drawing and meets the specification agreed at order.

- Material grade and heat number
- Key dimensions (length, diameter or panel size)
- Slot aperture specification
- Compliance statement against the approved drawing
- Production reference, date, and inspector signature

Material Test Report

MTR / EN 10204 3.1

Chemical composition and mechanical properties traceable to the material supplier's heat. Cross-referenced with our incoming XRF verification at goods-in.

- Chemical composition (Cr, Ni, Mo, C, Mn, Si, P, S, N, others)
- Mechanical properties (yield, tensile, elongation, hardness)
- Supplier heat number, melt date, EN 10204 classification
- Incoming XRF verification against mill certificate

Dimensional Report

DR — ON REQUEST

Measured dimensional values for the critical parameters on the approved drawing, with the applicable tolerance band. Supplied for tight-tolerance or regulated applications on request at order.

- Slot aperture readings at multiple points
- Diameter, length, or panel dimensions vs. tolerance
- Roundness or flatness deviation as applicable
- Derived open area percentage

Project-specific documentation. For regulated industries (pharmaceutical, food contact, potable water, oil & gas sour service) we produce additional documentation packs: EN 10204 3.2 third-party witnessed certificates, 3-A or EHEDG compliance statements, FDA 21 CFR 177.2600 material declarations, NACE MR0175 sour service certification. Request the list at the enquiry stage.

DESIGN TOOLS

Run the numbers before the enquiry.

Open area, flow capacity, pressure drop, cylinder design, and material selection are all computed online against the profiles and grades in this reference. For application-specific geometry or a compound loading case, reach the engineering team directly.

WEB TOOLS

Open Area Calculator

Flow Rate Calculator

Cylinder Design Tool

Material Selection Wizard

ENGINEERING CONTACT

Technical consultation on custom profiles, compound-load geometries, and combined-stressor service.

info@adenwedgewire.com

Response within one business day.
