



# ASWPENGG

Partners in Wire Excellence

## MB – Commercial High Carbon Spring Wire

### Various Grades:

- Quench & Tempered M.B Class I and Class II Spring Wire - Round
- Quench & Tempered Cold Rolling Quality (CRQ)

### General Information:

MB grade wire is used extensively in applications where dynamic loading is not a consideration.

### Applications:

Typical applications include springs for overhead garage doors, automobile springs, torsion springs, rake tines, transmission rings and screen wire cloth. Also, it is used for extension springs for oven doors and other appliance applications.

### Size Range:

.078" – .625" (2.0mm – 15.9mm)

### Specifications:

ASWPengG commercial high carbon spring wire complies with all current industry standards. We produce to: ASTM A-229, SAE, Ford, GM, Chrysler, Fiat, JIS and DIN specifications.

### Package:

Shipped loose or on a carrier.

Coil Weights: 1,000 – 4,400lbs (453kg – 2000kg)

48" (122cm) coils, 60" (152cm) or 80" (203cm) coils diameter.



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## Valve Spring Wire

### Various Grades:

- Oil Tempered Chrome Silicon Valve (9BV)
- Oil Tempered Chrome Silicon Vanadium Valve (9MV)
- Oil Tempered Chrome Silicon Vanadium Valve + Nickel (90VN)
- Hard Drawn Chrome Silicon Valve (9BV)
- Hard Drawn Chrome Silicon Vanadium Valve (9MV)
- Hard Drawn Chrome Silicon Vanadium + Nickel (90VN)

### General Information:

Valve spring wire is the highest quality wire available, and is manufactured to specifications that require superior surface quality, internal cleanliness and virtually no decarburization. All ASWPeng valve spring quality wire goes through a surface removal operation to eliminate seams, handling damage and decarburization from the rod. At the finished state, valve spring wire is eddy current tested for surface quality to a defect calibration level of .0015" (40 µm).

### Applications:

Valve spring wire is used for demanding applications that include dynamic loading at very high stress levels. Typical examples include springs for engine valves, automatic transmissions, clutch springs, fuel injectors, pumps, generators and air compressors. The rod used for this grade of wire offers minimal inclusion content and is appropriate for applications where anticipated stress or fatigue levels are severe.

### Size Range:

.078" – .315" (2.0mm – 8.0mm) Produced in round, ovate and elliptical shapes.

### Specifications:

ASWPeng valve spring wire complies with all industry specifications. These include: ASTM A-877, Ford, GM, Chrysler, Caterpillar, JIS, DIN, E.N., and many customer specific wire specifications.

### Package:

Coil Weights: 1,000 – 4,400lbs (453kg – 2000kg)  
48" (122cm) coils. Package on a carrier.



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## Commercial Alloy

### Various Grades:

- Quench & Tempered Chrome Silicon Commercial – Round & Shaped
- Quench & Tempered Chrome Silicon Vanadium – Round & Shaped
- Quench & Tempered Chrome Silicon 1%
- Quench & Tempered Chrome Silicon Vanadium 1%
- Oil Tempered Chrome Vanadium Commercial – Round & Shaped

### General Information:

Quench & Tempered Chrome Silicon Commercial grade wire is used extensively in applications where static loading is a requirement. These springs require greater resistance to stress relaxation (load loss) at elevated temperatures. The wire can be made in various shapes such as trapezoid, square, bevel, and others. ASWPengG has a process that can produce Chrome Silicon and Chrome Silicon Vanadium wire with tensiles as high as 340ksi (2,340 Newtons).

### Applications:

Typical applications include springs for automatic transmissions, appliances, railroad, farm implements, brake spring and suspension spring applications.

### Size Range:

.078" – .625" (2.0mm – 15.9mm) for OT Chrome Silicon Commercial  
.078" – .625" (2.0mm – 15.9mm) for OT Chrome Vanadium Commercial

### Specifications:

ASWPengG commercial wires comply with all current industry standards. We produce to: ASTM A-401, ASTM A-232, ASTM A-1000, SAE, Ford, GM, Chrysler, JIS and DIN and EN 10270 specifications.

### Package:

Shipped loose or on a carrier.  
Coil Weights: 1,000 – 4,400lbs (453kg – 2000kg)  
48" (122cm) coils, 60" (152cm) or 80" (203cm) coils diameter.

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## Hard Drawn

### Various Grades:

- Hard Drawn M.B. class 1 and class 2
- Hard Drawn Chrome Silicon Commercial
- Hard Drawn H.B.
- Music

### General Information:

This is drawn to finish wire made from 1060 to 1080 carbon steel. The wire will have appropriate ductility properties to allow for severe bending and forming applications.

### Applications:

Hard drawn wire grades are used in applications where dynamic loading is not a consideration.

### Size Range:

.078" – .437" (2.0mm – 11.0mm)

### Specifications:

ASWPengG hard drawn wire meets all current industry standards. Specifically we produce to: ASTM A-227, ASTM A-228 and ASTM A-229.

### Package:

36" (92cm) – 48" (121cm) coils diameter. Package on carriers.  
Coil weights: 1,000 – 4,400lbs (453kg – 2000kg)



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## PAF

### General Information:

PAF stands for “Patented at Finish” and is typically the last operation after the wire is drawn to its finish size or patented rod. The wire in this condition can be cold reduced further by drawing or rolling.

### Applications:

Customer specific. Typically where deep drawing or cold rolling require extra ductility during the forming process.

### Size Range:

.150” – .531” (0.40mm – 13.5mm)

### Specifications:

PAF is made to order and is not made to any particular specification. The customer will indicate the finish patented tensile that is required.

### Package:

Shipped on a carrier.

Coil weights: 1,000 – 4,400lbs (453kg – 2000kg)

48” (122cm) coil diameter.



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## Armour Wire

### General Information:

Armour wire is a flat cold rolled high carbon steel that is used in the manufacture of deep water flexible pipe for the oil and natural gas industry.

### Applications:

The flat wires are wrapped around the pipe to support the inside of the pipe from the high pressures of the oil and gas. The flat wires also support the pipe from outside pressures of the ocean. The wire must be very durable to withstand the severe bending that occurs during the placement of the wire onto the pipe. In some cases, the wire must withstand potential chemical attack from hydrogen sulfide.

### Size Range:

.197" x .078" (5mm x 2mm) through .590" x .197" (15mm x 5mm)

### Specifications:

Typically produced from medium to high carbon steel grades. Natural rolled or shaped edges are available.

All specifications are customer specific.

### Package:

Traverse wound coils supplied on pallets. Coil weights up to 5,500lbs (2500kg).



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## Flat Wire

### General Information:

ASWPengG produces flat wire using low or high carbon material. Rod is cold rolled by processing it through consecutive rolls at ambient temperature in order to achieve the required size. Specific tolerances can be attained for tensile, hardness and other properties. ASWPengG has the capability to patent or oil temper flat wire after rolling.

### Applications:

Typical applications are grain augers, clock wound springs, regulator springs, and hood hinge springs.

### Size Range:

.197" x .078" (5mm x 2mm) through .590" x .197" (15mm x 5mm)

### Specifications:

This wire is made from customer specific specifications and ASTM A-401 and ASTM A-229.

### Package:

Traverse wound coils supplied on pallets. Coil weights up to 5,500lbs (2500kg).



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## Special Shaped Wire

### Types:

Shaped wire can be produced in square, rectangular, keystone, oval, elliptical, half-round, D-shape and other custom shapes. This wire can be produced in hard drawn or oil tempered condition.

### General Information:

ASWPeng die drawn shaped wire is made of high carbon and alloy steels in special configurations to meet specific customer requirements for applications where uniformity and size dimensions are critical considerations. ASWPeng offers extensive capabilities in the manufacture of special configurations and tolerance restrictions, including an in-house die making facility equipped with the latest wire EDM equipment for the production of shaped dies.

### Applications:

Various applications from automotive components, die springs, clutch springs, etc.

### Size Range:

Thickness: .075" (0.20mm)

Width: .500" (12.5mm)

### Specifications:

ASWPeng die drawn wire meets all industry standards such as ASTM A-401, ASTM A-229 and ASTM A-1000. Size tolerances and configurations are held to specific customer requirements.

### Package:

48" (121cm) coils and 60" (152cm) coils for oil tempered wire.

36" (92cm) – 48" (121cm) coils for hard drawn shaped wire.





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## High Tensile Spring Wire

### Various Grades:

- Oil Tempered Chrome Silicon (FD, TD and VD) (SiCr)
- Oil Tempered Chrome Silicon Vanadium (FD, TD and VD) (SiCrV)

### General Information:

The Pengg Group has developed a process that can achieve a higher tensile than wire heat treated on a conventional tempering furnace. Currently, the wire produced with this process is mainly used in the automotive industry for static high stress applications. The material can be shaved or unshaven depending on the surface quality required.

It is possible to treat valve quality material (SiCrNiV), however, this product would need to be developed with a customer that has a specific application requiring a higher tensile.

Below is an example of tensile achieved by size for Chrome Silicon Vanadium. ASWPeng is capable of producing wire from 2mm (.078") to 7mm (.2756").

Size range [mm]	Tensile range [N/mm <sup>2</sup> ]	Size range [inch]	Tensile range [ksi]
2.00 – 3.50	2,240 – 2,340	0.0780 – 0.1377	325 – 339
3.50 – 4.50	2,220 – 2,320	0.1377 – 0.1772	322 – 336
4.50 – 5.60	2,200 – 2,300	0.1772 – 0.2205	319 – 334
5.60 – 7.00	2,180 – 2,280	0.2205 – 0.2756	316 – 331

### Specifications:

ASWPeng High Tensile wire complies with EN 10270-2 with increased tensile.

### Package:

Coil weights: 1,000 - 4,400 lbs (453kg – 2,000kg)  
48" (122cm) coils. Package on a carrier.

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