

This page is mainly introduced the ASTM 12Q Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of ASTM 12Q, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

## Datasheet for Steel Grades Special Alloy ASTM 12Q

### ASTM 12Q Standard Number:

| ITEM | Standard Number | Descriptions |
|------|-----------------|--------------|
|------|-----------------|--------------|

### ASTM 12Q Chemical composition (mass fraction) (wt.%)

| Chemical  |           |           |          | Min. (%)  |           |          | Max. (%) |    |                  |
|-----------|-----------|-----------|----------|-----------|-----------|----------|----------|----|------------------|
| C         | Si        | Mn        | P        | S         | Cr        | Ni       | Mo       | V  | Ta               |
| 0.45-0.55 | 0.20-0.80 | 0.65-0.95 | Max 0.04 | Max 0.045 | 0.80-1.10 | Max 0.50 |          |    |                  |
| W         | N         | Cu        | Co       | Pb        | B         | Nb       | Al       | Ti | Other            |
| Max 0.10  |           | Max 0.50  |          |           |           |          |          |    | Mo+W<br>Max 0.10 |

### ASTM 12Q

### ASTM 12Q Physical Properties

|                  |         |                          |
|------------------|---------|--------------------------|
| Tensile strength | 115-234 | $\sigma_b$ /MPa          |
| Yield Strength   | 23      | $\sigma_{0.2} \geq$ /MPa |
| Elongation       | 65      | $\delta_5 \geq$ (%)      |
| $\psi$           | -       | $\psi \geq$ (%)          |
| Akv              | -       | Akv $\geq$ /J            |
| HBS              | 123-321 | -                        |
| HRC              | 30      | -                        |

### ASTM 12Q Mechanical Properties

|                  |         |                 |
|------------------|---------|-----------------|
| Tensile strength | 231-231 | $\sigma_b$ /MPa |
|                  |         |                 |

|                |         |                                |
|----------------|---------|--------------------------------|
| Yield Strength | 154     | $\sigma_{0.2} \geq \text{MPa}$ |
| Elongation     | 56      | $\delta 5 \geq (\%)$           |
| $\psi$         | -       | $\psi \geq (\%)$               |
| Akv            | -       | $Akv \geq \text{J}$            |
| HBS            | 235-268 | -                              |
| HRC            | 30      | -                              |

### ASTM 12Q Heat Treatment Regime

| Annealing | Quenching | Tempering | Normalizing | Q & T |
|-----------|-----------|-----------|-------------|-------|
| ✓         | ✓         | ✓         | ✓           | ✓     |

### ASTM 12Q Range of products

| Product type    | Products                                 | Dimension                  | Processes                                   | Deliver Status                                                |
|-----------------|------------------------------------------|----------------------------|---------------------------------------------|---------------------------------------------------------------|
| Plates / Sheets | Plates / Sheets                          | 0.08-200mm(T)*W*L          | Forging, hot rolling and cold rolling       | Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting |
| Steel Bar       | Round Bar, Flat Bar, Square Bar          | $\Phi 8$ -1200mm*L         | Forging, hot rolling and cold rolling, Cast | Black, Rough Turning, Shot Blasting,                          |
| Coil / Strip    | Steel Coil / Steel Strip                 | 0.03-16.0x1200mm           | Cold-Rolled & Hot-Rolled                    | Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting |
| Pipes / Tubes   | Seamless Pipes/Tubes, Welded Pipes/Tubes | OD:6-219mm x WT:0.5-20.0mm | Hot extrusion, Cold Drawn, Welded           | Annealed, Solution and Aging, Q+T, ACID-WASHED                |

**We can produce Special Alloy the specifications follows:**