

## TECHNICAL SPECIFICATIONS

### 1- GRADE:

20MNB4 / 23MNB4 / 30MNB4 / C35ACR

#### **20MnB4**

C:	0,21 - 0,24
Mn:	0,90 - 1,10
Si:	0,15 - 0,25
P:	0,025 Max.
S:	0,025 Max.
Cr:	0,15-0,30
Cu:	0,25 Max.
B:	0,002 - 0,005

Hot rolled Rm: 580 Mpa max.

Hot rolled A: 25% min.

Hot rolled Z: 50 % min.

#### **23MnB4**

C:	0,24 - 0,27
Mn:	0,90 - 1,10
Si:	0,15 - 0,25
P:	0,025 Max.
S:	0,025 Max.
Cr:	0,15-0,30
Cu:	0,25 Max.
B:	0,002 - 0,005

Hot rolled Rm: 590 Mpa max.

Hot rolled A: 18% min.

Hot rolled Z: 46 % min.

### 30MnB4

C: 0,28 - 0,31  
Mn: 0,90 - 1,10  
Si: 0,15 - 0,25  
P: 0,025 Max.  
S: 0,025 Max.  
Cr: 0,15-0,30  
Cu: 0,25 Max.  
B: 0,002 - 0,005

Hot rolled Rm: 620 Mpa max.

Hot rolled A: 18% min.

Hot rolled Z: 50 % min.

### C35ACr

C: 0,34 - 0,37  
Mn: 0,75 - 0,79  
Si: 0,18 - 0,24  
P: 0,009 - 0,012  
S: 0,003 - 0,011  
Cr: 0,33 - 0,36  
Cu: 0,01 - 0,03  
Ni: 0,01 - 0,05  
Al: 0,036 - 0,045

Hot rolled Rm: 635 Mpa max.

Hot rolled A%: 16-19

Hot rolled Z%: 37-42

- Cold forming (test without cracks) will be performed on wire rod: for 20MnB4, 23MnB4, 30MnB4:  $l_0=1,5 \times d$  to  $1/3 \times l_0$  height

-Surface decarburization

Size	Permissible depth (mm)
Up to 10 mm inclusive 10mm	0,1
Over 10 mm	1,0 % of wire diameter

- Grain size of wire rod shall be 5 or finer according ISO 643

- Dimension tolerances according to EN 10108 CLASS A

- Deoxidation

O2 – 100 ppm max

H2 – 2 ppm max shall be aimed but not guaranteed

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**2- PACKING:**

5,5 – 27 mm with 7mm double wrapping. Each coil shall be wrapped with min. 4 equally distant double wire binding

EACH PACKAGE OF MATERIAL SHALL BE MARKED WITH THE FOLLOWING INFORMATION:

- NAME OF MANUFACTURER
- MATERIAL GRADE
- HEAT NUMBER
- SIZE OF MATERIAL (DIAMETER)
- PURCHASE ORDER
- WEIGHT
- PRODUCTION DATE

EACH COIL OF STEEL MUST BE TAGGED WITH 3 PLASTIC OR WATERPROOF PAPER LABEL WITH DIGITAL PRINT ON IT AS LIKE AS ON MINIMAL PACKING DETAILS. PDF. ONLY HAND WRITING FOR THE WEIGHTS AND PRODUCTION DATE.

MILLS TEST CERTIFICATE ISSUED BY THE MANUFACTURER IN 1 ORIGINAL AND 2 COPIES

THE MILL TEST CERTIFICATE FOR EACH STEEL GRADE MUST CONTAIN THE FOLLOWING INFORMATION:

- TITLE: INSPECTION CERTIFICATE EN 10204 – 3.1
- GRADE
- NOMINAL DIAMETER
- HEAT NUMBER
- TOTAL WEIGHT
- DIAMETER
- CHEMICAL COMPOSITION
- TENSILE STRENGTH (RM)
- YIELD STRENGTH (RP0,2), ELONGATION (A) AND CONTRACTION (Z) – (ONLY FOR REFERENCE)
- GRAIN SIZE
- RESULTS OF COLD FORMING TEST

