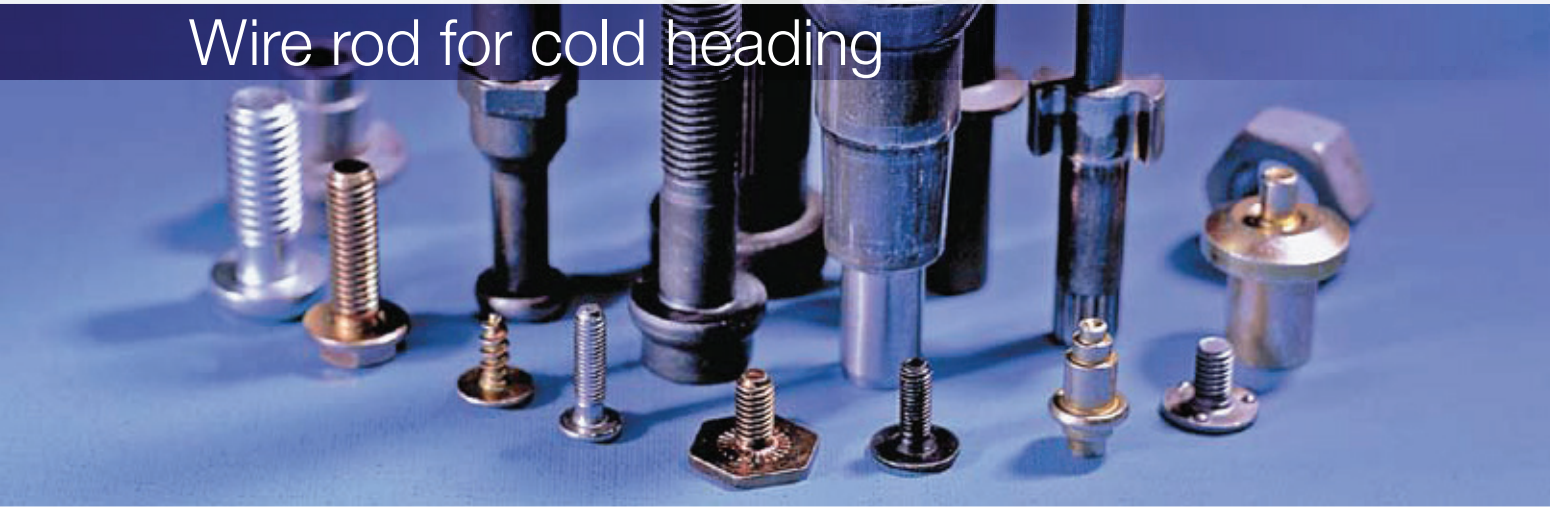
Wire rod for cold heading



Technological and metallurgical properties

Quenching hardenability

Boron steels are killed with Aluminium and Titanium, which allow enough boron to be active in order to guarantee the quenching hardenability of the steel.

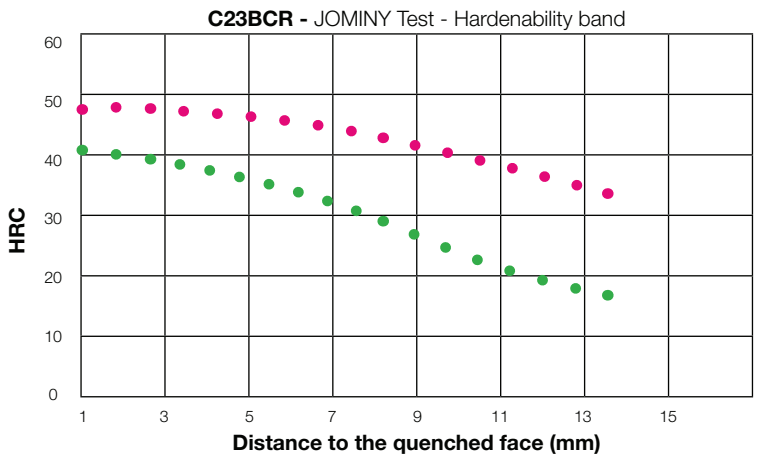
Products are systematically checked according to the current standards of core hardness by quenching and JOMINY tests.

Surface quality

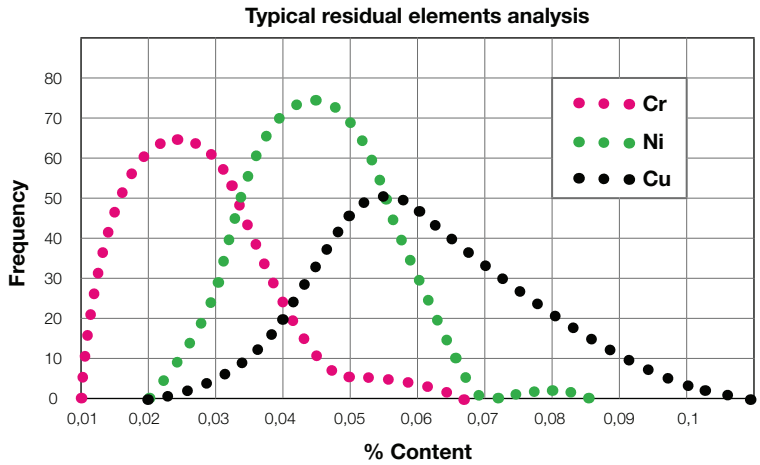
The rod is rolled from 180 x 180 mm blooms of assured surface quality.
The rolling process is strictly controlled by computer for different parameters, obtaining a product with a quality level that exceeds the requirements of EN 10221 Clase D.

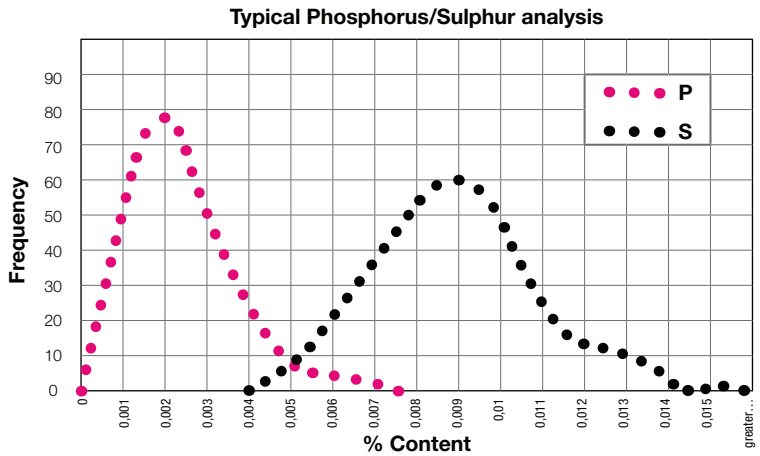
Decarburization

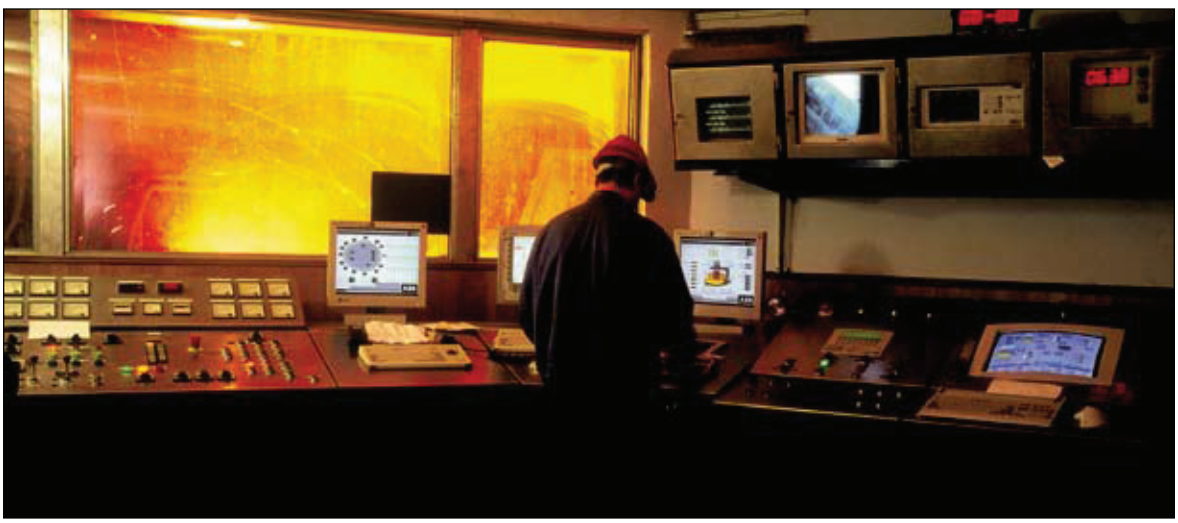
– Partial: Less than 1% of rod diameter.
– Free of total decarburization.



Standard chemical analysis and mechanical properties (II)







Geometrical and technological specifications

Range of diameters

Channels traced for coils (mm)

5,5	6	6,5	7	7,5	8	8,5	9
9,5	10	10,5	11	11,5	12	12,5	13
13,5	14	14,5	15	16	16,5	17	18
19	20	21	21,5	22	23	24	

· **25 - 52 mm Coils.** Other half sizes available under request.

Coil ends

Both ends are cold trimmed.

Size tolerances - EN10108-2004 class A and B			
Diameter	Standard tolerance	Special tolerance	Ovality
mm			
5,5 - 10,0	± 0,20	± 0,15	≤ 80% of tolerance
10,5 - 15,0	± 0,25	± 0,20	≤ 80% of tolerance
16,0 - 21,5	± 0,30	± 0,25	≤ 80% of tolerance
22,0 - 30,0	± 0,35	± 0,30	≤ 80% of tolerance
31,0 - 40,0	± 0,40	± 0,35	≤ 80% of tolerance
41,0 - 52,0	± 0,45	± 0,40	≤ 80% of tolerance
Coil Weight	2600 kg. on request, 1500 kg		
Coils dimensions	Outside diameter = 1210 mm Inside diameter = 900 mm Length = 1700 mm		

Delivery

- As rolled (Stelmor cooling)
- Spheroidising (subcritical)

With the supply of annealed material, scale is removed by acid pickling before annealing

Surface condition

On request, rods may be delivered with the following surface treatments:

Pickled / phosphated / limed

Pickled / phosphated / soaped

Pickled / phosphated / Polymer

Wire rod for cold heading

ALUMINIUM KILLED STEEL													
W.Nr	DIN Standard Designation	Other Designa-tions	EN 10263-2 Standard Designation	GSW Designation	%C	%Mn	%Si	%P	%S	%Cr	%Al	Rmax	Zmin (%) Reduction in Area
												N/mm²	
1.0303	QST 32-3		C4C	C05QAL	≤0,06	0,25-0,40	≤0,10	≤0,020	≤0,020	≤0,15	0,020-0,060	390	70
1.0303	QST 32-3		C4C	C06QAL	≤0,06	0,25-0,40	≤0,10	≤0,020	≤0,020	≤0,15	0,020-0,060		
1.0213	QST34-3		C8C	C08QAL	0,06-0,10	0,25-0,45	≤0,10	≤0,020	≤0,020	≤0,15	0,020-0,060	410	65
1.0214	QST36-3		C10C	C10QAL	0,08-0,12	0,30-0,50	≤0,10	≤0,020	≤0,020	≤0,15	0,020-0,060	430	60
1.0214	QST36-3		C10C	C13QAL	0,08-0,12	0,30-0,50	≤0,10	≤0,020	≤0,020	≤0,15	0,020-0,060		
1.0234	QST38-3	CQ15	C15C	C15QAL	0,12-0,15	0,35-0,60	≤0,10	≤0,020	≤0,020	≤0,15	0,020-0,060	460	58
1.0234	QST38-3	CQ15	C15C	C18QAL	0,15-0,18	0,35-0,60	≤0,10	≤0,020	≤0,020	≤0,15	0,020-0,060		
1.0434			C17C	C19QAL	0,15-0,19	0,65-0,85	≤0,10	≤0,020	≤0,020	≤0,15	0,020-0,060	520	58
1.0411		CQ22	C20C	C23QAL1	0,18-0,22	0,70-0,90	≤0,10	≤0,020	≤0,020	≤0,15	0,020-0,060	560	55
GSW Standard specification. Individual variations to any element can be considered.													

BORON STEEL														
W.Nr	DIN Standard Designation	Other Designations	EN 10263-4:2002 Standard Designation	GSW Designation	%C	%Mn	%Si	%P	%S	%Cr	%Al	B (ppm)	Rmax	Zmin (%) Reduction in Area
													N/mm²	
		CQ15B		C15B	0,14-0,18	0,50-0,80	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	500	450
1.5502			17B2	C18B	0,16-0,20	0,70-0,90	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	540	460
1.5506	17MNB	ASTM A320		C18B	0,06-0,20	0,70-0,90	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	540	460
1.5508	22B2	ES F1291	23B2	C22B	0,19-0,25	0,60-0,80	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	600	490
1.5523	19MNB4	ASTM A304	19MNB4	C23B	0,18-0,23	0,80-1,10	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	580	500
1.5525	20MNB4		20MNB4	C23B1	0,18-0,23	0,90-1,20	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	590	510
1.5535			23MNB4	C23BCR	0,20-0,25	0,80-1,10	≤0,15	≤0,020	≤0,020	0,15-0,30	≧0,020	10-50	600	520
1.5530		AF 20MB5	20MNB5	C23B3	0,17-0,23	1,10-1,40	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	630	540
1.5530		AF 20MNB5	20MNB5	C23BCR3	0,17-0,23	1,10-1,40	≤0,15	≤0,020	≤0,020	0,10-0,30	≧0,020	10-50	650	550
1.5536			27MNB4	C28B	0,25-0,30	0,80-1,10	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	630	540
1.5510	28B2	AF 25B3	28B2	C28B	0,25-0,30	0,60-0,90	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	630	540
1.5526			30MNB4	C30BCR	0,27-0,32	0,80-1,10	≤0,15	≤0,020	≤0,020	0,10-0,30	≧0,020	10-50	630	540
1.5511		35B2		C35B	0,32-0,38	0,60-0,90	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	680	600
1.5511		35B2		C35BCR	0,32-0,38	0,60-0,90	≤0,15	≤0,020	≤0,020	0,10-0,30	≧0,020	10-50	720	610
1.5537			36MNB4	C35B2	0,33-0,38	0,80-1,10	≤0,15	≤0,020	≤0,020	≤0,30	≧0,020	10-50	730	610
1.5537			36MNB4	C35BCR1	0,33-0,38	0,80-1,10	≤0,15	≤0,020	≤0,020	0,10-0,30	≧0,020	10-50	739	610
1.5538	37MNB5		37MNB5	C40MNB	0,35-0,40	0,15-1,45	≤0,15	≤0,020	≤0,020	≤0,30				
GSW Standard specification. Individual variations to any element can be considered.														

CHROMIUM ALLOYED STEEL														
W.Nr	DIN Standard Designation	Other Designations	EN 10263-4:2002 Standard Designation	GSW Designation	%C	%Mn	%Si	%P	%S	%Cr	%Mo	%Al	B (ppm)	Rmax annealed conditions
														N/mm²
1.5408	30MOB1		30MOB1	C30BCRMO	0,28-0,32	0,80-1,00	≤0,25	≤0,025	≤0,025	≤0,30	0,08-0,12	≧0,020	8-50	
1.7076			32CRB4	C32CRB4	0,30-0,34	0,60-0,90	≤0,25	≤0,025	≤0,025	0,90-1,20		≧0,020	10-50	550
1.7077			36CRB4	C36CRB4	0,34-0,38	0,70-1,00	≤0,25	≤0,025	≤0,025	0,90-1,20		≧0,020	10-50	570
1.7033	34CR4	ASTM A752	34CR4	C34CR4	0,30-0,37	0,60-0,90	≤0,25	≤0,025	≤0,025	0,90-1,20		≧0,020		580
1.7034	37CR4	ASTM A752	37CR4	C37CR4	0,34-0,41	0,60-0,90	≤0,25	≤0,025	≤0,025	0,90-1,20		≧0,020		590
1.7220	34CRMO4		34CRMO4	C34CRMO4	0,30-0,37	0,60-0,90	≤0,25	≤0,025	≤0,025	0,90-1,20	0,15-0,30	≧0,020		600
1.7202	37CRMO4		37CRMO4	C37CRMO4	0,35-0,40	0,60-0,90	≤0,25	≤0,025	≤0,025	0,90-1,20	0,15-0,30	≧0,020		620
1.7035	41CR4		41CR4	C41CR4	0,38-0,45	0,60-0,90	≤0,25	≤0,025	≤0,025	0,90-1,20		≧0,020		610
1.7039	41CRS4		41CRS4	C41CRS4	0,38-0,45	0,60-0,90	≤0,25	≤0,025	0,020-0,040	0,90-1,20		≧0,005		600
1.7225	42CRMO4		42CRMO4	C42CRMO4	0,38-0,45	0,60-0,90	≤0,25	≤0,025	≤0,025	0,90-1,20	0,15-0,30	≧0,020		
GSW Standard specification. Individual variations to any element can be considered.														