

# 1.2842 90 MnCrV 8

AISI O2, BS BO2, AFNOR 90 M V 8

# 1.2510 100 MnCrW 4

AISI O1

Translation: Cold work tool steel for the production of tools, gauges, fixtures, templates, guide rails, and components of all kinds. This material is also available from us according to your specifications as a standard material for machine parts and through-hardened guide rails up to 40mm in thickness.

When it comes to heat treatment, it is important to note that 1.2842 is a through-hardening steel that undergoes a volume change of approximately 1‰ during heat treatment but exhibits very low distortion. Workpiece cross-sections over 40mm in thickness may result in lower hardness values than 58–62 HRC. For larger cross-sections of guide rail components, we recommend 1.2363, 1.2379, or TENASTEEL® for wear parts, as well as 1.2436 or 1.2379.

Precision flat steel with machining allowances is commonly produced in 1.2510. Machinability is good and trouble-free.

Toolox 33 is a more cost-effective alternative with higher strength if heat treatment is not planned (see page 47 and following).

### Color Coding:

Blue (1.2842)

Blue/Orange (1.2510)



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WebShop:  
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123

# 1.2842 90 MnCrV 8

**PräziPlan® - precision flat steel**  
(according to DIN 59350)

### Execution:

Soft annealed,  
strength 650–750 MPa,  
hardness max. 229 HB,  
Thickness ground with  $R_a = 2 \mu\text{m}$ , width finely ground,  
Machined with decarburization-free treatment on all sides.

### Tolerances:

width: +0.20 / -0mm  
thickness: +0.05 / -0mm  
length: +20.00 / -0mm

		length: 500 mm																	price per piece		
		thickness [mm]																			
		1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	15.0	18.0	20.0	25.0	30.0	40.0	50.0			
width [mm]	10.0	5	5	5	6	6	7	9	10												
	12.0	5	5	6	6	6	8	9	10	11											
	15.0	5	6	6	6	7	8	10	11	12	13										
	20.0	6	6	6	7	8	9	11	12	13	14	15	17								
	25.0	6	7	7	8	9	10	12	13	14	15	17	19								
	30.0	7	7	8	9	10	11	13	14	15	16	18	19	21	26						
	35.0	8	8	9	10	11	12	14	15	16	17	20	21	23	29	34					
	40.0	8	9	10	11	12	13	15	16	17	19	22	23	27	31	38					
	45.0	9	10	11	12	13	14	16	17	18	20	23	26	28	35	40	47				
	50.0	9	10	11	12	13	15	16	17	19	21	26	26	30	37	41	48				
	60.0	10	11	12	13	15	16	17	19	22	25	29	31	35	40	47	53	78			
	70.0	11	12	13	15	16	17	19	21	25	28	33	36	40	46	53	62	87			
	75.0	12	13	14	16	17	18	20	22	26	29	36	38	41	48	58	67	95			
	80.0	13	14	15	16	17	19	21	24	27	30	38	39	44	53	64	76	101			
	90.0	14	15	16	17	18	20	23	25	28	33	39	45	47	57	71	82	114			
	100.0	15	16	17	18	19	21	24	28	29	36	42	47	51	61	74	92	121			
	120.0	17	18	19	20	22	24	28	30	34	40	46	52	56	69	88	102	134			
	125.0	19	20	21	22	24	27	30	33	37	42	48	56	59	73	91	110	145			
	150.0	21	22	23	26	27	30	33	37	41	48	57	67	73	91	109	130	173			
160.0	23	24	26	29	31	33	37	39	48	54	64	72	78	98	126	134	198				
180.0	25	28	29	31	33	37	40	46	55	61	78	81	89	115	142	159	221				
200.0	29	31	32	34	37	40	46	53	62	69	84	93	101	134	162	186	250				
250.0	35	37	39	40	42	48	56	62	71	83	101	119	134	147	182	209	297				
300.0	42	43	44	45	47	57	65	73	82	96	126	145	155	178	218	261	324				

		square, length: 500 mm																	prices per piece	
		4.0	5.0	6.0	8.0	10.0	12.0	15.0	16.0	18.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	60.0		
	10	10	11	12	13	14	15	17	19	20	24	37	40	47	57	67	94			

		cross-ground plates: 300 x 500 mm																	price per piece	
		1.2	1.7	2.2	3.2	4.2	5.2	6.2	8.2	10.2	12.2	15.3	18.3	20.3	25.3	30.3	40.3	50.3		
		42	44	49	50	51	59	67	76	87	104	129	146	163	188	230	267	327		

Thickness tolerance +0.2 / -0mm,  $R_a = 4 \mu\text{m}$ , cross-ground

You can find hardened plates on page 124

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## 1.2842 90 MnCrV 8

### PräziPlan® - precision flat steel (according to DIN 59350)

#### Execution:

Soft annealed,  
strength 650–750 MPa,  
hardness max. 229 HB,  
Thickness ground with Ra = 2 µm, width finely ground,  
Machined with decarburization-free treatment on all sides.

#### Tolerances:

width: +0.20 / -0mm  
thickness: +0.05 / -0mm  
length: +40.00 / -0mm

\*Width sawn or sheared at 400 + 500mm  
with +5 / -0mm.

Compare Toolox 33 as a cost-effective  
alternative if no heat treatment is  
planned (see page 48 and following).

**We deliver special configurations  
quickly and affordably!**

length: 1,000 mm

price per piece

width [mm]	thickness [mm]														
	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	15.0	18.0	20.0	25.0	30.0	40.0	50.0
10.0	11	12	13	14	18	19									
12.0	12	12	14	15	19	20	21								
15.0	12	13	15	16	20	21	22	24							
20.0	13	14	16	17	21	22	23	26	29	35					
25.0	14	15	17	18	22	24	26	29	31	37	39				
30.0	16	17	18	19	23	27	29	31	35	39	41	53			
35.0	17	18	19	20	27	29	30	33	38	42	45	57	67		
40.0	18	19	21	24	29	31	32	35	41	48	50	64	74		
45.0	20	22	24	27	30	32	35	40	47	54	56	70	84	102	
50.0	21	22	24	27	30	33	36	41	48	55	58	71	86	105	
60.0	23	26	30	31	33	37	41	46	53	67	69	82	96	116	157
70.0	26	29	31	33	37	41	47	53	63	76	78	94	111	138	178
75.0	27	30	32	34	38	42	48	54	65	81	86	101	123	154	199
80.0	30	32	34	36	41	47	52	56	73	82	88	105	129	155	205
90.0	32	34	36	38	42	51	55	63	78	93	94	119	151	176	229
100.0	34	36	38	40	46	54	57	69	82	93	103	129	155	181	234
120.0	38	40	43	47	55	60	69	79	96	110	113	144	176	214	266
125.0	42	44	48	54	58	65	72	86	101	124	126	147	181	230	294
150.0	46	50	55	57	64	73	79	94	118	132	146	186	223	255	336
160.0	51	57	61	63	70	80	96	107	132	156	161	203	235	287	376
180.0	57	61	65	70	78	90	110	122	155	179	184	234	269	329	444
200.0	64	67	71	81	90	98	117	133	171	194	198	247	307	376	481
250.0	78	80	84	95	109	123	138	162	205	245	251	307	361	435	564
300.0	88	90	96	108	128	144	159	194	242	285	292	355	415	511	647
400.0*	147	162	166	185	215	231	269	314	388	403	466	585	666	824	965
500.0*	163	180	184	206	242	258	300	350	431	447	517	650	741	915	1073

1.2842

square, length: 1,000 mm

price per piece

	5.0	6.0	8.0	10.0	12.0	15.0	16.0	18.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	60.0
	21	21	22	24	26	30	33	35	38	50	73	89	93	128	140	193

cross-ground plates: 500\* x 1,000 mm

price per piece

	6.2	8.2	10.2	12.2	15.3	18.3	20.3	25.3	30.3	40.3
	225	240	292	334	407	431	469	579	657	809

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## 1.2842 90 MnCrV 8

### PräziPlan® - hardened plates

#### Execution:

Hardened to 56–58 HRC, thickness ground,  
Width and length cut with laser or waterjet.

#### Tolerances:

width: +10.00 / -0mm  
thickness: +0.20 / -0mm  
length: +10.00 / -0mm  
flatness: 0.20 to  
500mm

hardened plates: 250 x 500 mm

prices per piece

	thickness [mm]													
	2.2	2.7	3.2	3.7	4.2	4.7	5.2	6.2	7.2	8.2	9.2	10.2	12.2	14.2
	88	90	96	101	109	113	131	134	136	157	198	205	214	220

Please also consider our hardened plates made of Hardox® 600! (See page 82)

## Varioduct - hardened adhesive guiderails

#### Execution:

Hardness 58–62 HRC  
Available in a thickness of 4 mm and various standard  
widths, lengths between 100–3,100 mm can be selected as  
desired, bevels on longitudinal edges upon request.

#### Tolerances:

width: +0.2 / -0mm  
thickness: +0.05 / -0mm  
length: +/-1mm (separation cut)  
+0 / -0.2mm (end cut)

Sample prices for 2 pieces each, adhesive side with  
2 longitudinal bevels, end sides separated by  
grinding:

VarioDuct, hardened adhesive strips, thickness 4 mm price per piece

length [mm]	width [mm]									
	20	25	30	35	40	45	50	55	60	80
1000	119	125	130	131	136	140	145	149	164	182
2000	211	222	234	235	245	253	262	271	301	337
3000	303	320	337	340	354	366	380	393	438	492

Detailed information on pages 14-15.

You can calculate your adhesive strip configuration online at  
[www.varioduct.de](http://www.varioduct.de).

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# 1.2510 100 MnCrW 4 / 1.2842 90 MnCrV 8

## PräziPlan® - precision flat steel with machining allowance (according to DIN 59350)

length: 1,000 mm

price per piece

**Execution:**  
Soft annealed, strength 650–750 MPa, hardness max. 230 HB, Thickness ground with Ra = 6 µm, width finely machined/ground, Machined with decarburization-free treatment on all sides.

**Tolerances:**

width: +0.40 / -0 mm  
thickness: +0.25 / -0 mm  
length: +40.00 / -0 mm

width [mm]	thickness [mm]																			
	2.2	3.2	4.2	5.2	6.2	8.2	10.4	12.4	15.4	16.4	20.4	25.4	30.4	32.4	40.4	50.4	60.4	63.4	80.4	100.4
10.3	11	11	12	13	15	17														
12.3	11	12	14	15	16	18	19													
15.3	11	12	13	15	17	19	20	23												
20.3	12	13	15	17	19	20	22	25	26	30										
25.3	13	15	17	18	20	22	24	27	31	33	35									
30.3	15	17	18	20	22	24	26	29	33	36	40	52								
32.3	17	18	19	21	23	25	28	31	36	39	43	58	67							
35.3	18	19	20	22	24	26	30	32	37	40	44	60	69							
40.3	18	19	21	23	25	28	31	35	39	43	49	61	71	75						
50.3	20	23	24	27	29	31	36	39	46	51	56	68	79	84	92					
60.3	23	24	27	29	31	36	39	46	51	58	66	78	92	95	109	141				
63.3	24	26	28	30	35	39	42	48	55	59	71	86	96	106	123	161				
70.3	25	28	30	33	36	41	47	52	61	63	75	91	105	115	128	167	214			
80.3	29	31	32	37	40	47	52	57	69	73	84	99	115	126	146	187	239	255		
100.3	33	34	36	42	48	54	58	65	81	92	103	126	136	152	178	223	282	302	338	
120.3	35	40	42	48	57	61	68	78	96	99	114	146	172	180	198	259	342	365	356	476
125.3	38	42	45	50	60	66	73	84	103	107	123	157	188	198	214	292	356	383	420	506
150.3	52	56	57	62	66	72	81	93	112	121	138	188	230	240	261	335	405	436	476	545
160.3	53	57	61	65	71	80	91	105	124	136	157	201	240	251	277	364	436	467	522	629
175.3	56	60	64	67	74	84	99	111	143	148	164	207	254	265	302	382	455	477	567	670
180.3	60	62	67	73	78	90	106	123	146	157	175	219	265	278	317	402	459	493	548	680
200.3	63	67	71	80	86	101	119	140	167	178	190	235	284	303	355	430	490	525	616	708
250.3	76	81	86	96	107	117	136	159	195	219	238	291	342	365	424	530	576	623	698	822
300.3	85	91	99	110	120	141	163	183	228	234	286	344	412	432	500	613				

square, length: 1,000 mm

price per piece

	8.4	10.4	12.4	15.4	16.4	18.4	20.4	25.4	30.4	32.4	40.4	50.4	60.4	63.4	80.4	100.4
	21	22	24	31	33	34	37	47	69	76	92	141	166	185	305	411

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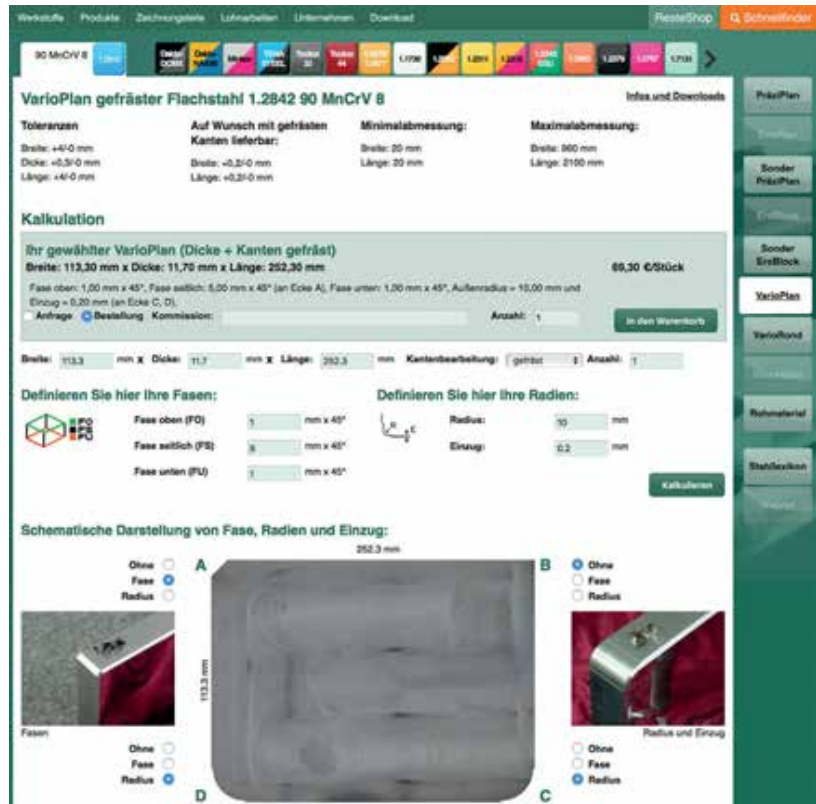
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# 1.2842 90 MnCrV 8

## VarioPlan® Finely milled semi-finished products in freely selectable dimensions.

- Flexible in width, thickness, and length
- Edges sawn or milled
- Optionally with bevels and/or corner radius
- Manufacturing in 2 to 3 days
- Easy calculation

Use our online calculation tool in the webshop: [www.varioplan.de](http://www.varioplan.de)



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1.2842

1.2510/  
1.2842

## 1.2842 90 MnCrV 8

### VarioRond®

Round material sections with freely selectable length at a unit price.

**Execution and Tolerances:**  
 Length, sawn: +3.0 / -0 mm  
 Diameter: +3.0 / -0 mm  
 Diameter range: 20–250 mm

**Flexible online calculation:**  
[www.variorond.de](http://www.variorond.de)

- Desired length is freely selectable
- Unit prices for your desired length
- Sawing costs included
- No additional surcharges

**VarioRond Rundmaterial 1.2842 90 MnCrV 8**

Toleranzen  
 Länge: +3/-0 mm  
 Durchmesser: +3/-0 mm

**Kalkulation (Länge frei wählbar / Preise stückzahlabhängig)**

Ihr gewählter VarioRond  
 Durchmesser: 55,00 mm x Länge: 264,00 mm  
 29,60 €/Stück

Anfrage  Bestellung  Kommission:  Anzahl: 1

Durchmesser: 55 mm x Länge: 264 mm x Anzahl: 1

Länge [mm]	Durchmesser [mm]														
	20	25	30	38	40	45	50	55	60	65	70	80	90	100	110
1.002,5	18,20 €	22,80 €	30,60 €	37,10 €	44,90 €	53,70 €	65,70 €	76,30 €	87,80 €	100,30 €	117,60 €	147,20 €	173,20 €	208,70 €	252,50 €

## 1.2510 100 MnCrW 4 round bars, ground

**Tolerance:**  
 diameter: h8  
 length: +30.0 / -0 mm

length: 1,000 mm price per piece

	diameter [mm]								
	4.5	5.0	6.0	8.0	10.0	12.0	15.0	20.0	25.0
	3	4	5	6	9	11	15	26	37

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## 1.2842 90 MnCrV 8

**Raw material**  
 Sheets or cuttings thereof rolled according to EN 10029 Class C.

	thickness [mm]											
	1.5	1.8	2.5	3.6	4.6	5.6	6.6	8.0	8.8	10.0	11.1	12.0
	13.5	14.0	16.6	17.5	19.4	20.5	22.4	23.5	25.0	27.4	28.5	30.0
	32.5	34.0	40.0	42.5	50.0	53.5	60.0	64.0	70.0	80.0	100.0	

Greater thicknesses upon request.

- We cut blanks according to your specifications.
- Preprocessed as VarioPlan® is available.
- Flat steel bars are available at short notice.
- You can obtain round materials as VarioRond®.

Select affordable raw materials online, including cuttings.  
[www.ResteShop.de](http://www.ResteShop.de)

Fast, clear, and transparent: Offcut shop and Quick finder at [www.stahlnetz.de](http://www.stahlnetz.de).

ResteShop Schnellfinder

Werkstoff  
 1.2842 90 MnCrV 8

Flach  Rund

Breite mm x Dicke mm x Länge mm

### Offcut shop

- All materials
- With cutting service
- Available immediately from stock
- Affordable special prices for remnants
- While supplies last

### Quick finder

- All products in comparison
- Your custom parts fully calculated
- Easy selection of the optimal solution

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# 1.2842 90 MnCrV 8

chemical composition [%]

	C	Si	Mn	Cr	V
max.	0.95	0.40	2.20	0.50	0.20
min.	0.85	0.10	1.80	0.20	0.05

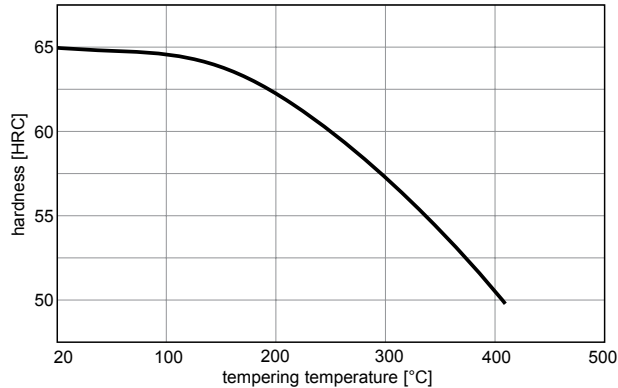
Cold work tool steel for the production of tools, gauges, fixtures, templates, guide rails, and components of all kinds.

You can obtain this material from us as precision flat steel (standard and special dimensions), VarioPlan®, VarioRond®, and as raw material cuttings.

We also provide 1.2842 according to your specifications as a standard material for machine parts and hardened guide rails up to 40mm thickness.

### Tempering chart

hardening temperature: 810°C, sample cross-section: square 20mm.

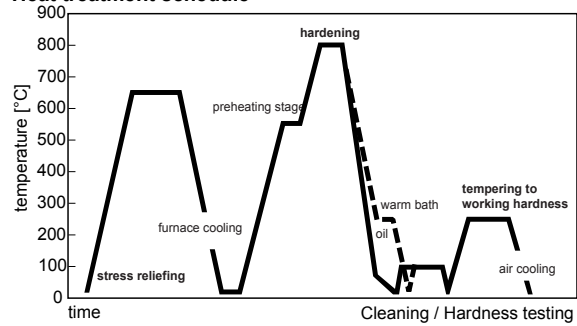


During the heat treatment, it's important to note that 1.2842 is a through-hardening steel, which experiences a volume change of approximately 1% during heat treatment but exhibits very low distortion. Workpiece cross-sections over 40mm in thickness could potentially result in lower hardness values than 58–62 HRC. For larger cross-sections of guide rails, we recommend 1.2363 or 1.2379, and for wear parts, consider 1.2436. For non-hardened components, we recommend Toolox 33 as it is cost-effective despite having higher strength. Machinability is good and trouble-free.

The risk of cracking during repair welding, as is common with tool steels, is present.

**Color marking: Blue**

### Heat treatment schedule



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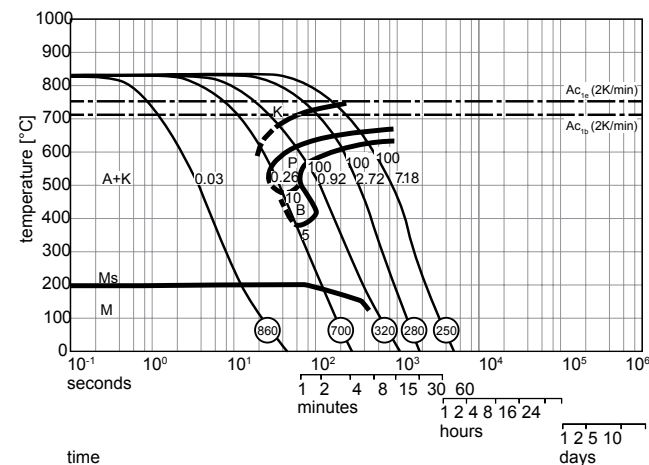
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# 1.2842 90 MnCrV 8

chemical composition [%]

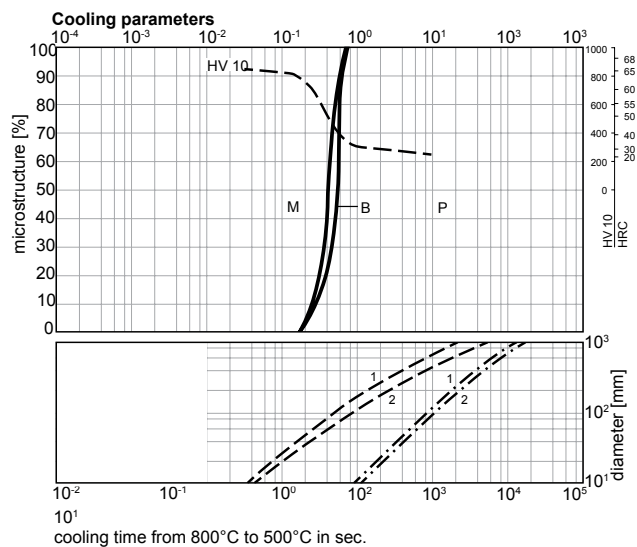
	C	Si	Mn	Cr	V
max.	0.95	0.40	2.20	0.50	0.20
min.	0.85	0.10	1.80	0.20	0.05

Continuous cooling transformation (CCT) diagram for continuous cooling austenitization temperature: 820°C, holding time: 15 minutes.



- ..... hardness in HV
- 5...100% ..... microstructure fractions
- 0.03...7.18 ... cooling parameters, i.e., cooling time from 800°C to 500°C in seconds x 10<sup>-2</sup>
- B ..... Bainit

### Microstructure diagram



- oil cooling
- - - air cooling
- 1 ..... workpiece edge
- 2 ..... workpiece center

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# 1.2842 90 MnCrV 8

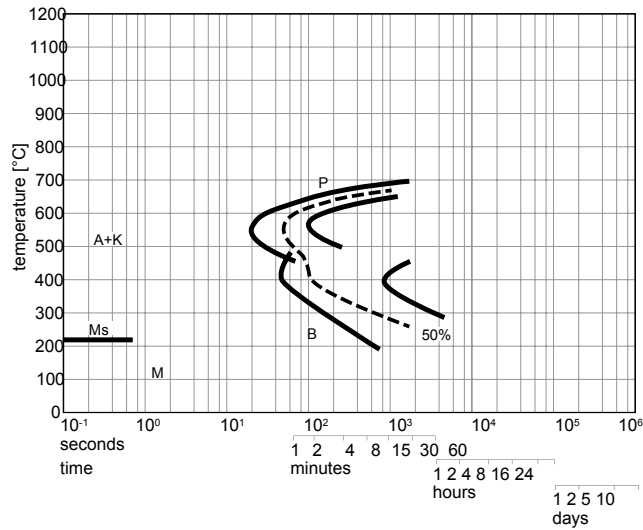
chemical composition [%]

	C	Si	Mn	Cr	V
max.	0.95	0.40	2.20	0.50	0.20
min.	0.85	0.10	1.80	0.20	0.05

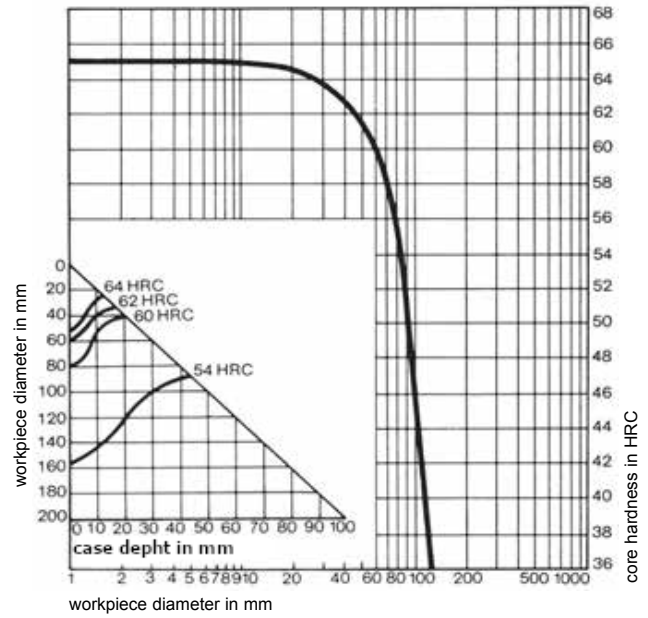
1.2842

## Isothermal Time-Temperature-Transformation (TTT) diagram

austenitization temperature: 820°C, holding time: 15 minutes



## Dependence of core hardness and case depth on the workpiece diameter.



hardening temperature: 820°C  
hardening medium: Öl

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