1.2162 21 MnCr 5

AISI 5120, AFNOR 20 MC 5

1.7131 16 MnCr 5

AISI 5115, BS 527 A 19, AFNOR 16 MC 5

Tool steel used for the production of highly stressed machine components and plastic molds.

olor coding::

Mint/Orange (1.2162)

1.2162

1.2162 21 MnCr 5 111
PräziPlan® – precision flat steel 112

Tool steel for the production of highly stressed and wear-resistant components of all kinds

Color coding:

Mint (1.7131)

1.7131

1.7131 16 MnCr 5 111
EcoPlan® – precision flat 113
steel VarioPlan® 114
VarioRond® 115
Raw material 116
Steel glossary 117

1.2162 21 MnCr 5

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

Execution:

Annealed (softened)
Hardness max. 217 HB (Brinell hardness)
Thickness ground with Ra = 6 µm (surface roughness), width finely processed
All sides processed without decarburization

Tolerances:

width: +0.2 / -0 mm
thickness: +0.2 / -0 mm
length: +40.0 / -0 mm

length: 1,000 mm — price per piece

width [mm] \ *thickness [mm]*	*8.2*	*10.4*	*12.4*	*15.4*	*16.4*	*20.4*	*25.4*	*30.4*	*40.4*	*50.4*	*60.4*
20.3	29	30	32	33	41						
25.3	30	31	36	39	45	48					
30.3	33	35	41	46	56	56	68				
32.3	37	39	48	51	59	62	70	86			
40.3	38	41	51	58	68	71	80	89			
50.3	48	50	63	65	74	76	84	101	109		
60.3	55	58	72	75	85	88	97	109	131	152	
70.3	65	67	82	85	94	98	110	121	148	167	202
80.3	74	77	92	95	102	109	126	146	165	190	213
100.3	86	89	103	113	128	129	148	167	193	225	244
120.3	111	113	126	136	153	157	173	201	230	271	297
150.3	133	136	146	153	179	178	193	230	277	332	338
200.3	164	169	192	198	212	219	246	288	344	388	438
250.3	205	214	242	251	271	282	303	334	409	471	515
300.3	227	232	264	271	308	315	348	401	472	538	594
500.3		313	350	365	419	443	524	594	686	813	890

square, length: 1,000 mm — price per piece

15.4	*20.4*	*25.4*	*30.4*	*32.4*	*40.4*	*50.4*	*60.4*	*70.4*	*80.4*	*100.4*
38	50	64	84	95	107	140	189	225	256	355

We deliver special versions quickly and affordably!

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EcoPlan® 150/400/800 - precision flat steel (according to DIN 59350) in short lenths

Execution:

Precision machining without decarburization on all sides, including length.

Tolerances:

width:	+0.2 / -0 mm
thickness:	+0.2 / -0 mm
length	+0.4 / -0 mm

length: 400.3 mm — price per piece

400	thickness [mm]											
width [mm]	8.4	10.4	12.4	15.4	20.4	25.4	30.4	40.4	50.4	60.4	80.4	100.4
20.3	12	13	13	14	22							
25.3	13	13	15	17	21	28						
30.3	14	15	19	20	24	30	38					
40.3	16	19	22	25	31	34	39	47				
50.3	21	22	28	29	33	37	46	48	59			
60.3	24	25	32	33	38	41	48	58	64	70		
80.3	28	33	39	42	43	45	60	68	75	82	109	
100.3	39	39	41	48	49	50	67	77	84	95	126	161
120.3	42	42	44	52	53	56	75	85	95	106	141	185
150.3	45	45	48	58	62	79	84	98	111	125	167	222
200.3	52	52	57	67	69	95	102	120	136	155	209	281
250.3	59	59	64	77	79	110	119	143	162	185	251	338
300.3	66	66	73	86	88	126	137	165	187	216	293	397
400.3	79	79	88	105	109	157	171	208	238	276	377	516

length: 150.3 mm — price per piece

150	thickness [mm]								
width [mm]	8.4	10.4	12.4	15.4	20.4	25.4	30.4	40.4	50.4
20.3	7	7	8	8	12				
25.3	7	8	9	10	11	15			
30.3	8	9	10	11	13	16	21		
40.3	9	10	12	14	17	20	22	26	
50.3	11	12	15	16	19	21	26	27	33
60.3	13	14	17	19	22	24	27	32	35
80.3	15	19	23	23	27	31	34	37	38
100.3	22	22	25	28	32	35	37	39	41
120.3	28	29	32	34	35	38	39	41	44
150.3	33	34	35	38	39	40	42	46	49

length: 800.3 mm — price per piece

800	thickness [mm]											
width [mm]	8.4	10.4	12.4	15.4	20.4	25.4	30.4	40.4	50.4	60.4	80.4	100.4
80.3	50	60	73	74	87	99	106	121	133	164	204	
100.3	68	69	80	90	100	111	118	135	150	186	242	253
120.3	87	87	94	108	108	120	129	149	166	208	273	288
150.3	95	95	102	118	119	135	145	170	191	242	322	344
200.3	106	106	116	135	137	159	172	206	234	298	401	435
250.3	117	117	130	152	157	183	200	241	276	355	480	522
300.3	129	129	144	170	175	231	253	308	353	410	559	614
400.3	152	152	171	204	214	285	313	386	447	522	718	797
500.3	174	174	199	239	252	338	375	466	541	634	876	975
600.3	197	197	252	287	290	402	435	544	634	747	1035	1157

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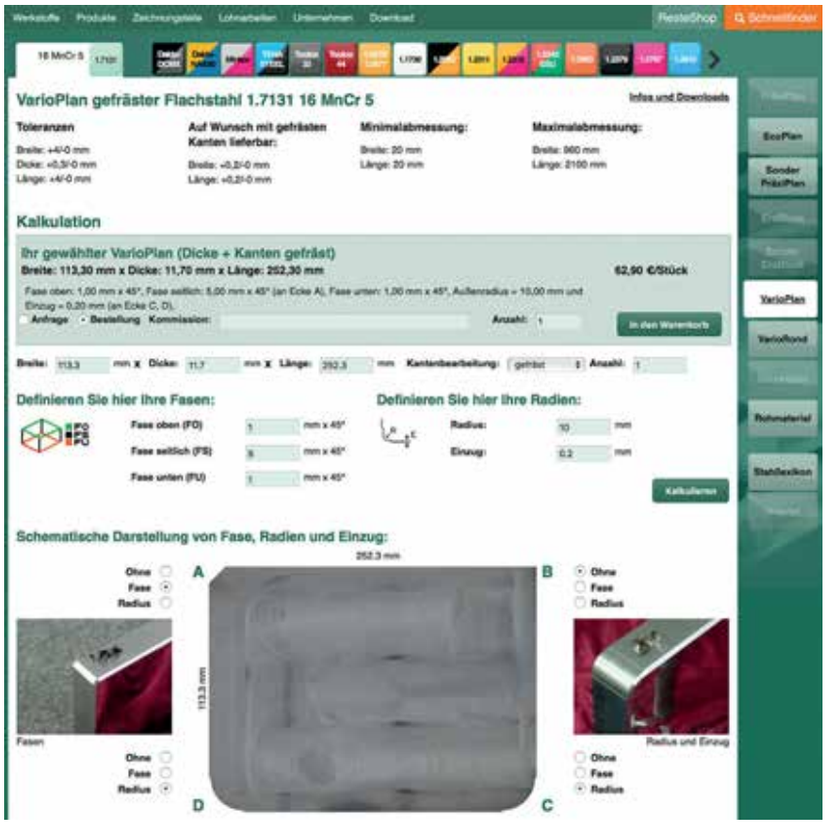
VarioPlan®

Precision-machined semi-finished products in freely selectable dimensions.

- Flexible in width, thickness, and length
- Edges sawed or milled
- Available with chamfers and/or corner radii upon request
- Production in 2 to 3 days
- Easy calculation

Use our online calculation tool on our webshop:

www.varioplan.de



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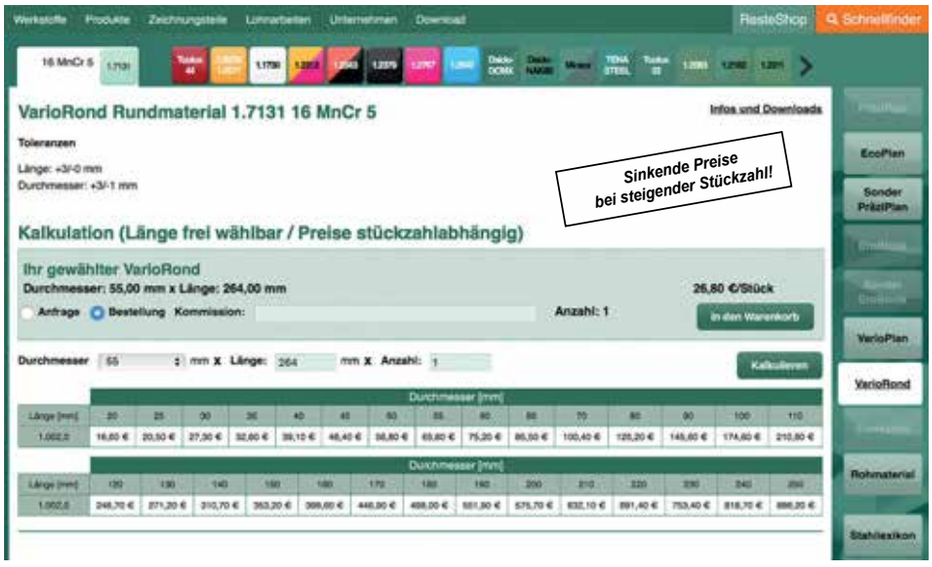
VarioRond®

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

Execution and tolerances: Length, sawn: +3.0 / -0mm Diameter: +3.0 / -1mm Diameter range: 20–250mm

Flexible online calculation: www.variorond.de

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



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Raw material

Plates or cuttings thereof rolled according to EN 10029 Class B or C

Formats: 1,000 mm x 2,000 mm, 1,250 mm x 2,500 mm

	thickness [mm]									
	6	8	10	12	15	16	18	20	22	25
	30	32	35	40	45	50	55	60	65	70
	75	80	90	100	110	120	130	140	150	160

- We cut blanks according to your specifications.
- Flat bar steel is available for prompt delivery.
- You can obtain round material as VarioRond.

Select affordable raw material online, including options for custom cutting www.ResteShop.de
Fast, clear, and transparent:
Offcuts shop and Quick finder at www.stahlnetz.de

Offcuts sshop

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

Quick finder

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

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chemical composition [%]

	C	Si	Mn	Cr
max.	0.19	0.4	1.3	1.1
min.	0.14		1.0	0.8

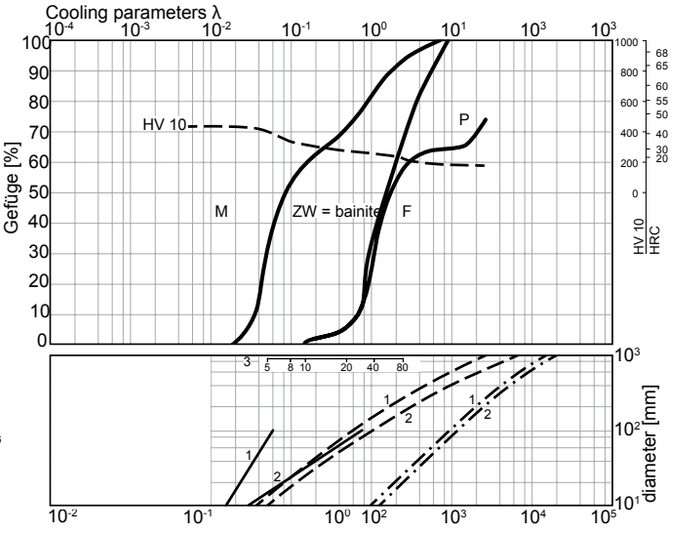
Tool steel for the production of highly stressed and wear-resistant components of all kinds.

You can obtain this material from us as precision flat steel, custom-made EcoPlan, VarioPlan, VarioRond, and as raw material cuttings.

We also provide 1.7131 customized to your specifications as a machine component or as a fully heat-treated guide rail.

Color coding: Mint

Microstructure quantity diagram

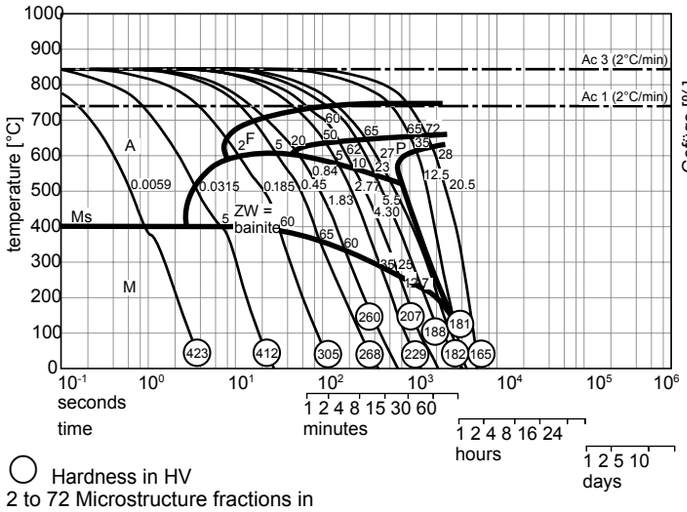


10^1 cooling time from 800°C to 500° C [sec.]

—— water cooling
– – – oil cooling
– • – air cooling

1 ... Workpiece edge
2 ... Workpiece center
3 ... Jominy test: distance from the end face

Continuous cooling ZTU diagram
Austenitizing temperature: 870°C, Holding time: 10 minutes



○ Hardness in HV
2 to 72 Microstructure fractions in %0.0059 to 20.6 Cooling parameters,

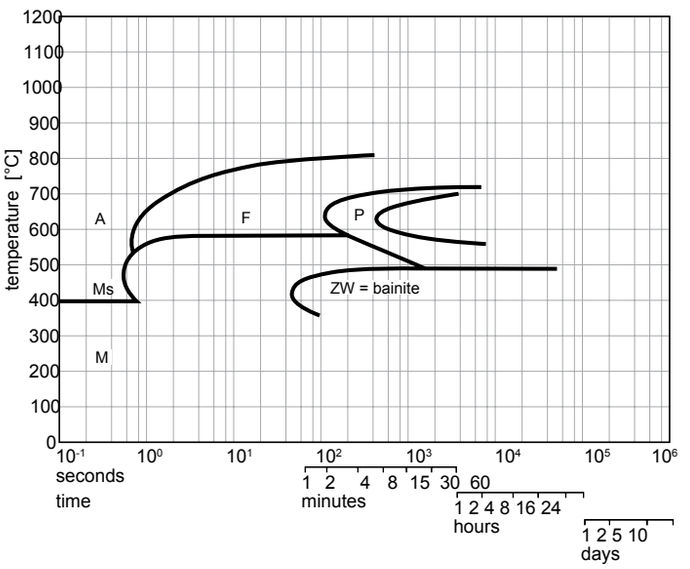
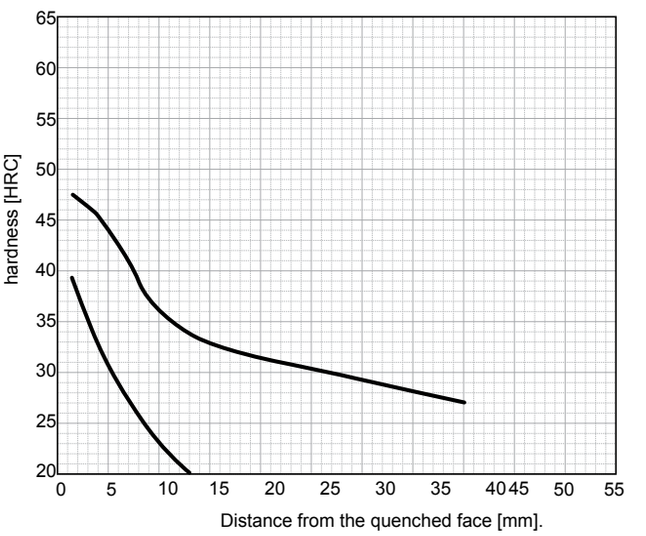
i.e., cooling duration from 800–500°C in s x 10^{-2}

1.7131 16 MnCr 5

chemical composition [%]

	C	Si	Mn	Cr
max.	0.19	0.4	1.3	1.1
min.	0.14		1.0	0.8

Isothermal TTT diagram
Austenitization temperature: 870°C, Holding time: 10 minutes



Face quenching test.
Hardening temperature: 870° C.