



耐磨钢板 – BRINAR® 400 必瑞达® 400

Material Number: 1.8714



**ILSENBURGER
GROBBLECH**

Ein Unternehmen der Salzgitter Gruppe

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尺寸

依据发货协议

厚度 ≤ 120 mm (根据要求提供其他尺寸)

Dimensions

According to delivery program

Thicknesses ≤ 120 mm (other dimensions on request)

化学组分/ Chemical Composition (Heat Analysis in %)

C	Si	Mn	P	S	Cr	Mo	B	Al
Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
0,30	0,40	1,50	0,015	0,005	1,00	0,60	0,005	0,100

其他元素: Ti 或/ 和 V 或/ 和 Nb. / In addition: Ti or/ and V or/and Nb.

钢厂有改变化学组分的权利/ We reserve the right to change the chemical composition.

化学组分典型值/ Typical Chemical Composition (Heat Analysis in %)

厚度/ Thickness	C	Si	Mn	P	S	Cr	Ni	Mo	B	Nb	CEV
20 mm	0,13	0,30	1,30	0,009	0,001	0,25	0,05	0,02	0,002	0,02	0,43
40 mm	0,13	0,30	1,30	0,009	0,001	0,25	0,05	0,25	0,002	0,02	0,47
80 mm	0,22	0,30	0,90	0,009	0,001	0,75	0,50	0,25	0,002	0,02	0,60
120 mm	0,28	0,30	0,90	0,009	0,001	0,75	0,50	0,50	0,002	0,02	0,80

Mechanische Eigenschaften | Mechanical Properties

硬度/ Hardness

HB

360–450

20 mm 典型值 / Typical values for 20 mm

硬度	屈服强度 $R_{p0.2}$	抗拉强度 R_m	延伸率 A_5	低温冲击韧性
Hardness	Yield Point $R_{p0.2}$	Tensile Strength R_m	Elongation at Rupture A_5	Notch Impact Energy
HB	MPa	MPa	%	-20 °C
400	960	1.250	12	60 J

化学成分测试频率

每炉测试

Number of Tests

One hardening test per heat.

加工性能*

折弯

折弯表面需经过打磨, 没有凹槽, 必须去除毛刺。如果需要, 可在折弯模具使用润滑剂, 和/或使用多道次折弯进行成型。表面喷砂会影响钢板的机械性能和折弯效果。推荐使用润滑剂, 进行多道次折弯和使用带滚动倒角的下模。推荐的折弯上模半径如下:

垂直于轧制方向: < 8 mm 2,5 x 板厚; 8 mm – 18 mm 3,0 x 板厚; > 18 mm – 50 mm 4,0 x 板厚

沿轧制方向: < 8 mm 3,0 x 板厚; 8 mm – 18 mm 4,0 x 板厚; > 18 mm – 50 mm 5,0 x 板厚

Processing*

Cold Forming

The surfaces must be free from grooves, burrs must be removed. If necessary, lubrication of the matrix width and/or bending in multiple stages is recommended. Shot blasting can influence cold forming. Recommendable is a sufficient lubrication and or bending in several steps and, furthermore, the use of a rotating die edge radius. The following bending radii are possible:

Transverse to rolling direction: < 8 mm 2.5 x thickness;

8 – 18 mm 3.0 x thickness; > 18 mm – 50 mm 4.0 x thickness

Longitudinal to rolling direction: < 8 mm 3.0 thickness;

8 – 18 mm 4.0 x thickness; > 18 mm – 50 mm 5.0 x thickness

热成型

加热温度不得超过250°C。该钢适用于850–1.000°C之间的热成型。必须根据交货条件进行后续淬火和回火。

机加工

推荐含钴合金的高速合金钢钻头 HSSCO. 钻孔速度约 7– 9 m/min 加工时应注意钻头的充分冷却。

火焰切割

切割时，钢板温度至少要保证在室温条件（20度）。我们建议的预热温度：厚度 > 45 mm 为 100 °C，厚度 > 60 mm 为 150 °C，厚度 > 80 mm 为 175 °C。

焊接

BRINAR® 400 适合所有的焊接方法。焊接时，钢板温度至少要保证在室温条件（20度），我们推荐的预热温度：钢板厚度 > 20 mm 为 75 °C，> 40 mm 为 100 °C，> 50 mm 为 175 °C，> 80 mm 为 200 °C。选择预热温度时，必须始终观察结构的固有应力水平。层间温度不得超过250°C。选择合适的焊条时，应注意焊缝是否暴露在磨损面。这些指示仅为标准值。通常，应遵守SEW 088的指示。

Hot Forming

Heating should not exceed 250 °C. The steel is suitable for hot forming between 850 – 1.000 °C. A subsequent quenching and tempering has to be carried out according to the delivery condition.

Milling

Drilling with cobalt-alloyed high-speed steels HSSCO, the cutting speed should be approx. 7– 9 m/min. Mandatory is a sufficient cooling.

Flame Cutting

The material temperature should be at least room temperature. We recommend the following preheating temperatures: for plate thicknesses > 45 mm up to 100 °C and > 60 mm up to 150 °C. and > 80 mm up to 175°C.

Welding

BRINAR® 400 is suitable for all known welding methods. The material temperature should be at least room temperature. We recommend the following preheating temperatures: for plate thicknesses > 20 mm up to 75 °C, > 40 mm up to 100 °C, > 50 mm up to 175 °C and > 80 mm up to 200 °C. The inherent stress level of the construction always has to be observed when opting for the preheating temperature. Interpass temperature should not exceed 250 °C. When choosing a suitable electrode, it should be noted to what extent the welding seam is exposed to wear.

These indications are standard values only. In general, indications of SEW 088 should be adhered to.

*由于进一步加工引起的内部张力而产生的裂纹不能索赔。/ Cracks as a result of internal tensions provoked by further processing cannot be claimed.

Empfohlene Schweißzusatzwerkstoffe / Recommended Welding Consumables

焊接方法 Welding Method		焊材类型(焊条/ 焊丝) Type of Electrode / Wire	
		低合金焊材 / low-alloyed	不锈钢焊材 / stainless
手工电弧焊/ Manual arc welding / MMA, SMAW (111 ¹)		DIN EN ISO 2560-A: E42**H**, E46**H**	EN ISO 3581-A: 18 18 Mn / EN ISO 3581-B: 307
	埋弧焊/ Submerged arc welding / UP / SAW (121 ¹)	DIN EN ISO 14171-A: S 42** oder S 46**	EN ISO 14343-A: B 18 8 Mn / EN ISO 14343-B: SS307
气体保护焊 / MAG	实芯焊丝/ GMAW (135 ¹) Solid wire / GMAW (135 ¹)	DIN EN ISO 14341-A: G 35**, G 36**, G 42**, G46**	EN ISO 14343-A: B 18 8 Mn / EN ISO 14343-B: SS307
	药芯焊丝/ FCAW (136 ¹) Cored wire / FCAW (136 ¹)	DIN EN ISO 17632-A: T 35**, T 36**, T 42**, T46**	EN ISO 17633-A: T 18 8 Mn / EN ISO 17633-B: TS307
钨电极气体保护焊 WIG / GTAW, TIG (141 ¹)		DIN EN ISO 636-A: W 42**, W 46**	EN ISO 14343-A: W 18 8 Mn / EN ISO 14343-B: SS307

¹ DIN EN ISO 4063

** 一个或多个字符 / one or more characters

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