

GUN DRILLING TOOLOX[®] 44 AND TS46

The Toolox[®] steels from Swedish Special Steel producer SSAB have a unique combination of high strength and crack resistance. Making it an excellent choice for advanced machine components as well as mould and dies. Being delivered already heat treated to up to 45 HRC improves manufacture time but also guarantees a high and consistent quality. The outstanding fatigue resistance ensures the same performance during the whole lifetime of the products.

The low level of impurities makes the Toolox[®] 44 product a perfect choice for plastic moulds where high quality polishing is needed. Recently the thickness range has been expanded up to 320 mm so now the same excellent performance can be obtained also when manufacturing larger plastic components.

Toolox[®] 44 can also use for hot work applications, but it has its limitations. SSAB is therefore developing a more alloyed grade that resist higher work temperatures even better. During development that new grade is called TS 46. Both Toolox[®] 44 and TS 46 has for its high hardness a great machinability. But some operations such as gun drilling of cooling channels can create difficulties when customers start to work with the grade

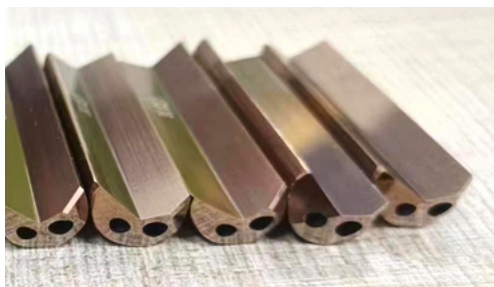
Therefore, SSAB together with gun drilling specialist Shuangli cutting tools (www.dgsl dj.com) decided to identify suitable parameters. Shuangli was a natural choice for SSAB since they are a quality reference in the Chinese market as well as outside of China. Shuangli not only supply top products, they assist their customers in optimising their usage.



As a result of the testing, it was proven that both Toolox® 44 and TS 46 can be perfectly gun drilled. On the following table start values can be found.

Diameter (mm)	RPM	Brazen Cemented Carbide Drill				Drills With Exchangeable Drill				
		Feed (mm/min)		Regrinding advice	Cooling pressure	RPM	Feed (mm/min)		Regrinding advice	Cooling pressure
		Min.	Max	mm	Mpa		Min.	Max.	mm	Mpa
φ 3	3715	18.6	37.2	800	100-120					
φ 4	2787	13.9	27.9	800	80-100					
φ 5	2229	17.8	22.3	800	60-80					
φ 6	1858	14.9	18.6	800	60-80					
φ 7	1592	15.9	23.9	800	50-70					
φ 8	1393	13.9	20.9	800	50-70					
φ 9	1238	18.6	24.8	800	40-60					
φ 10	1115	16.7	22.3	800	40-60					
φ 11	1013	20.3	30.4	800	30-50					
φ 12	929	18.6	27.9	800	30-50					
φ 13	857	25.7	34.3	800	20-40	1225	36.7	61.2	800-1200	20-40
φ 14	796	23.9	31.8	800	20-40	1137	34.1	56.9	800-1200	20-40
φ 15	743	29.7	37.2	800	20-30	1062	31.8	53.1	800-1200	20-30
φ 16	697	27.9	41.8	800	20-30	995	39.8	59.7	800-1200	20-30
φ 17	656	32.8	39.3	800	20-30	937	37.5	56.2	800-1200	20-30
φ 18	619	31.0	37.2	800	20-30	885	44.2	70.8	800-1200	20-30
φ 19	587	29.3	35.2	800	20-30	838	41.9	67.0	800-1200	20-30
φ 20	557	27.9	33.4	800	20-30	796	39.8	63.7	800-1200	20-30

The parameter data are depend on the drill of DGSLDJ company, www.dgsl dj.com



Availability

Plates and blocks from 6 – 320 mm. Bars between 21 and 405 mm with lengths up to 5000 mm. Toolox® is available from the local SSAB stock. Cut pieces of Toolox® can be obtained through the well-established global network of Approved Toolox® Distributors. Both SSAB and distributors can also provide you with good application support as well as technical guidelines.

Contact and more information

Contact your local sales representative to learn more, visit www.toolox.com or consult Tech Support at: help@ssab.com