

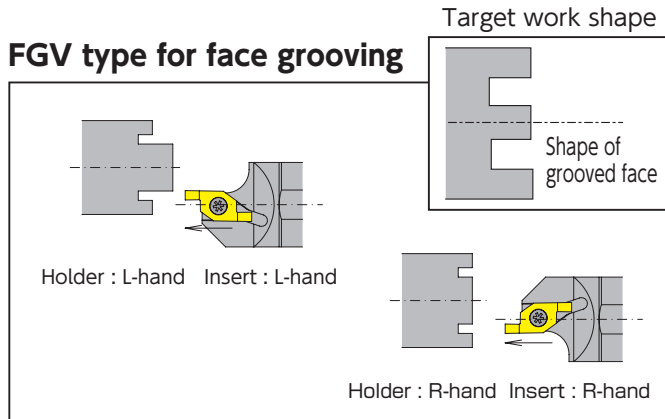
SATURN DUO

Face grooving tool

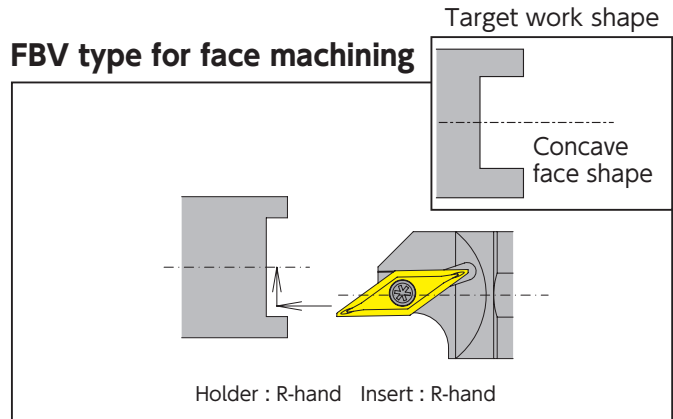
Features

- FGV type for face grooving and FBV type for face machining
- Economical double-corner specification
- Improved tool rigidity by optimizing the overhang and holder shape
- Gang-type, front-gang-type and sleeve holder types available

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- Grooving is possible under a wide range of cutting conditions due to strengthened rigidity of both insert and holder
- Minimum machining diameter of $\phi .236"$, and groove width of $.039"$
- Left-hand types available for machining work with a boss



- Further improved face machining efficiency
- Minimum machining diameter of $\phi .315"$

Recommended Cutting Condition for FGV Style Tooling (for Face Grooving)

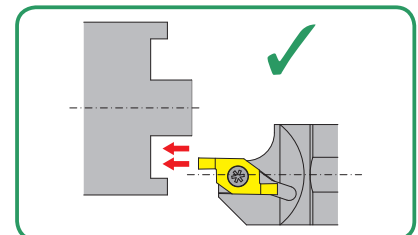
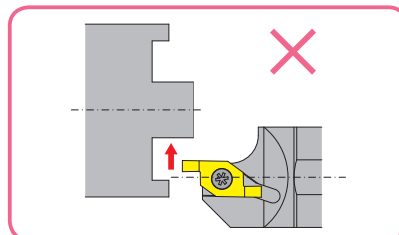
		Steel (Carbon Steel, Alloy Steel)	Stainless Steel (Excluding 303 SS)	Free Cutting Steel (Including 303 SS)	Non-ferrous Metals (Brass, Aluminum, Copper)
Speed (SFM)		160 (100 - 330)	130 (100 - 330)	200 (100 - 330)	260 (160 - 390)
Feed Rate (IPR)	Groove Depth (Inch)	.039	.0008 (.0004-.002)	.002 (.0004-.0025)	.002 (.0004-.0025)
		.059	.0008 (.0004-.002)	.0004 (.0002-.001)	.001 (.0004-.002)
		.079	.0004 (.0002-.001)	.0004 (.0002-.001)	.0008 (.0004-.002)

☆Tips for Successful Face Grooving

- ① Run multiple passes if turning wider grooves.
Make sure to groove from outer diameter to inner diameter to avoid any interference.
- ② If lines appear on the boss section, slow down feed rate when retracting the tool.
- ③ If scratch appears at the end of the boss, slow down the feed rate.
- ④ If groove surface looks torn, either slow down feed rate or increase speed.
- ⑤ If groove bottom looks torn with a speed and feed condition, increase the speed.

☆Note

Side turning cannot be performed with FGV style tooling



Recommended Cutting Conditions for FBV Style Tooling (for Face Grooving)

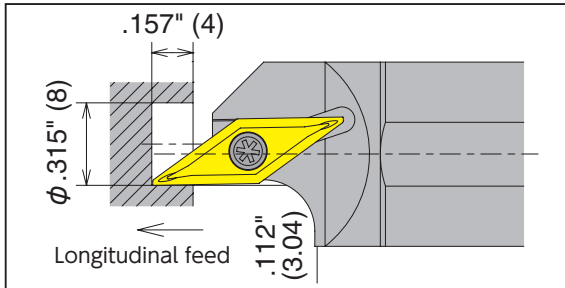
Minimum machining diameter: ϕ .315" (8mm) WET

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Speed (SFM)			160 (100 - 330)	130 (100 - 330)	200 (100 - 330)	260 (160 - 390)
Feed Rate (IPR)	Groove Depth (Inch)	.039	.001 (.0004-.002)	.0008 (.0004-.002)	.002 (.0004-.0025)	.002 (.0004-.0025)
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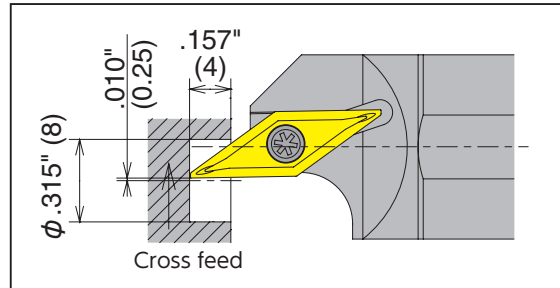
* When machining difficult materials where chip control is problematic (such as 304SS), it is recommended that the machining be carried out in several stages.

☆Machining process

- For materials with good machinability, it is possible to machine up to .157" (4mm) deep at a low feed rate in a single pass for both longitudinal feed and cross feed.



Cutting in Z direction : Longitudinal feed



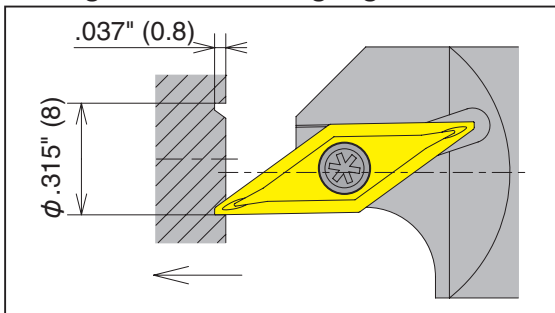
Cutting in X direction : Cross feed

☆Useful tips for machining

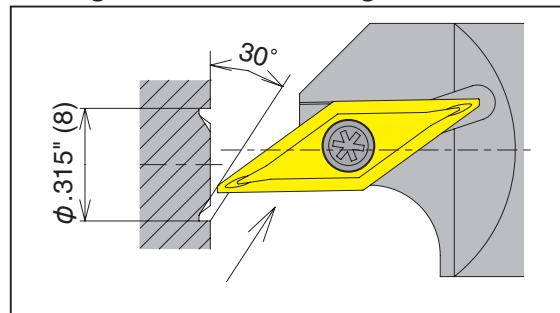
When burrs occur on ID surface, it is recommended to perform the cut in 2 passes, one for roughing and one for finishing as shown in the following procedure:

☆Example of 2-pass machining: Leave .008" (0.2mm) on roughing then run a finish cut

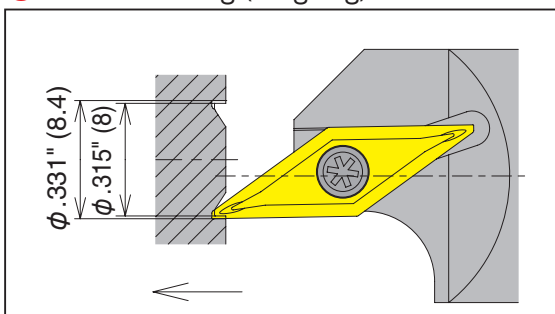
1 Longitudinal feed (roughing)



2 Longitudinal feed (finishing)



3 Slant machining (roughing)



4 Cross feed (finishing)

