Technical Information

Making the Best Threads

How you cut steel pipes has a great influence on the shape of a thread

1) Use the most appropriate cutting tool for the type of pipe used.

Depending on your intended use, refer to the following for cutting steel pipes used for construction equipment.

Type	Blade	Appropriate REX Products	Steel Pipe	Stainless Steel Pipe
Band saw cutting machine	 Band saw	Mantis 125/120A/180WS/180WA/270A	OK	OK
Circular saw cutting machine	 Circular saw	Carbide cutter TC-20 - 150	OK	×
Pipe cutter	 Cutter wheel	Cutter on pipe machine (standard equipment)	OK	OK*

Table 1. Types of Cutter and their use

* Optional cutter wheel

2) Cutting precision has a great influence on the shape of the thread.

Only use pipes with a flat, right-angled cut. Avoid using pipes with a slant or step of more than 1 mm. (Fig. 1)

- When a thread is cut on a steel pipe that has been correctly cut at right angles, the 4 dies work in unison to cut a perfect thread. (Fig. 2)
- When a thread is cut on a steel pipe where the end of the pipe is slanted or has steps, the result is a polygonal thread or a pipe of uneven thickness. (Fig. 3)

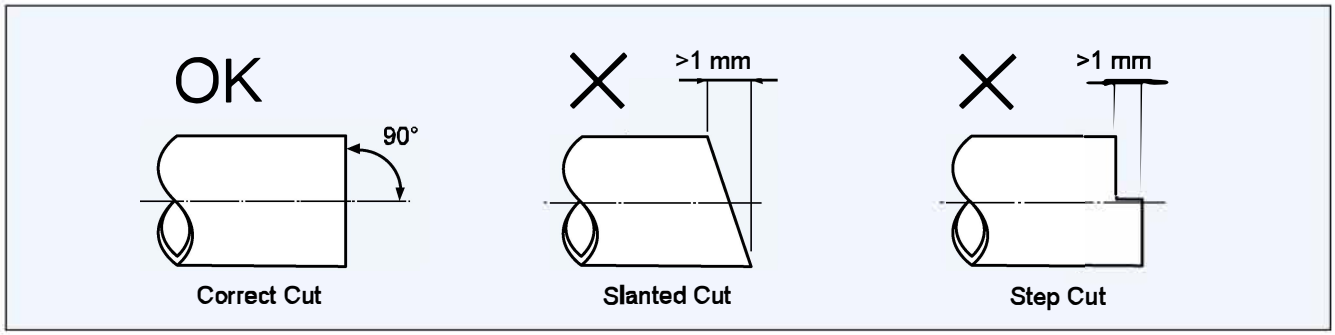

Fig. 1 Acceptable and unacceptable pipe ends

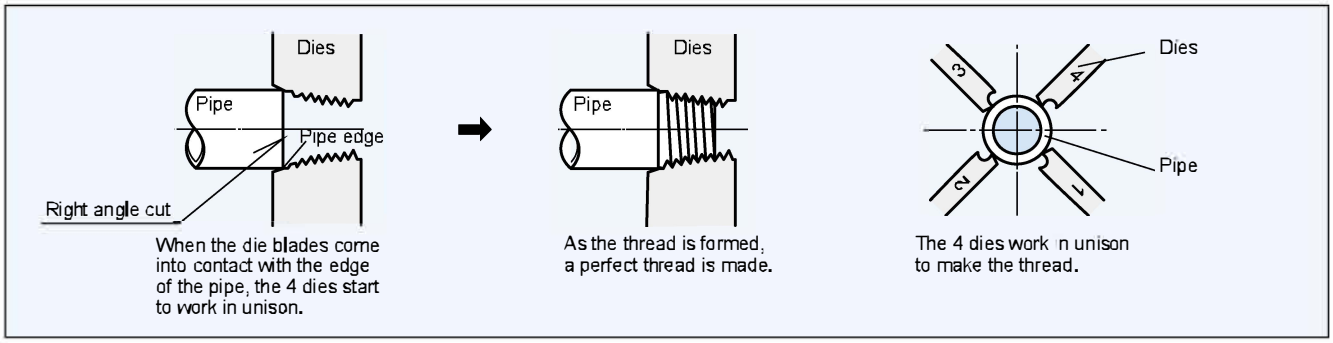

Fig. 2 Principle of cutting threads with a set of dies

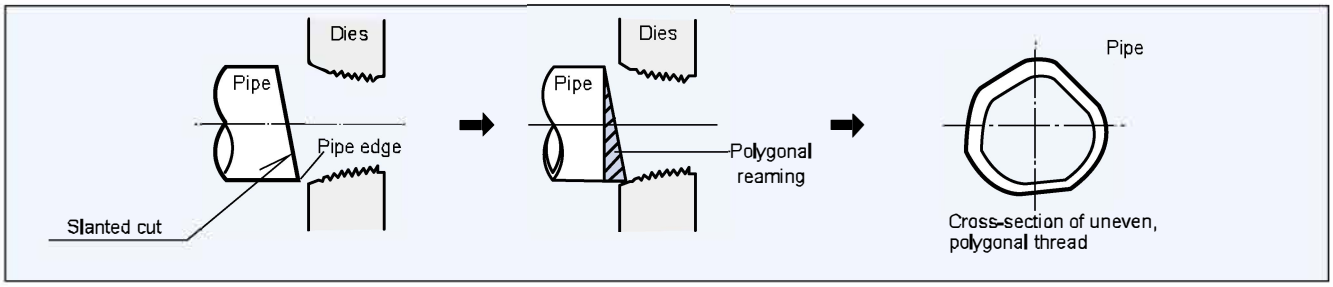

Fig. 3 Principle of polygonal threads

Using the right oil means consistent finishes and increases the life of the dies

1) Cutting oil comes in 3 types: for use with tap water pipes, general plumbing, and stainless steel pipes.
As shown in the table below, use the correct cutting oil according to the type of pipe. (Table 2)

Note: Using cutting oil for stainless steel on steel pipes will result in imperfect threads and leakages.

Cutting oil \ Type of pipe	Steel pipes for tap water	Stainless steel pipes	General plumbing pipes
For tap water pipes 50W-R, N50W	OK	×	OK
For general plumbing 246-R, N246	×	×	OK
For stainless steel pipes100SW-R	×	OK	×

Table 2. Appropriate cutting oil

2) Changing cutting oil, and causes of a reduction in oil performance

contains water | contains 10% iron powder | contains 20% iron powder

If any of the following occurs, it means it is time to change the cutting oil.

Problem	Cause
If the oil becomes cloudy	This is the result of water getting mixed into the oil. If the cutting oil contains more than 20% water, the life of the dies will be drastically reduce.
If the oil turns black	When the amount of oil flowing from the die head is reduced, the surfaces where the pipe is cut get very hot and smoke is produced. This greatly reduces the performance of the oil.
If the oil becomes 'shiny' caused by metal powder	This means that microscopic colloidal sediment or metal powder has become mixed in with the oil. Change the oil.

3) Amount of cutting oil

The oil coming from the die head should flow continuously without interruption, and no smoke should be produced.

Inspecting the Thread

After making a thread, inspect it both visually and with a thread gauge to ensure it is accurate.

Inspection with a tapered thread ring gauge

ISO 7/1 (JIS B0203) Male Tapered Thread for Pipe

a: standard distance from pipe edge
b, b': allowance from pipe edge along the axis

f: Necessary effective thread portion (minimum)

Thread is acceptable if the pipe edge is located between b and b' after you screw the pipe thread into the ring gauge with your hand.

When the male thread is screwed into the taper thread ring gauge by hand, if the end face of the male thread is between the notches -b and +b as shown in Figure 5, it is passed, and if it is out of place, it is rejected.
To pass, the full thread length (L) must have three or more threads from the large diameter end face of the gauge, and if the thread length is less than three threads, it is too short and fails.

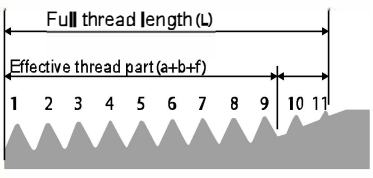

Fig. 4 Inspecting the Thread

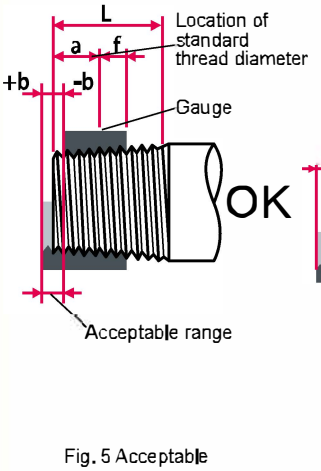

Fig. 5 Acceptable

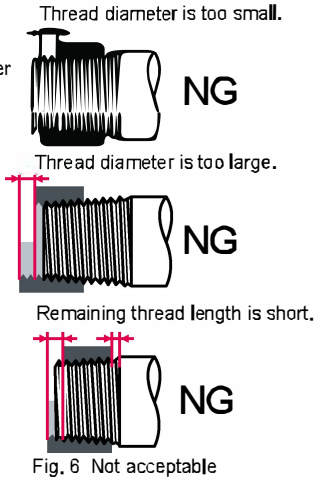

Fig. 6 Not acceptable