No. 084 **Pipe Taps: Combination of Internal & External Pipe Threads** Thread specifications

【Consultation】

There are many kinds of pipe threads with various symbols, such as R, Rc, Rp, G, PT, PS, PF. Can you tell me if there are any rules for the combination between internal threads and external threads? I'm having trouble understanding all the different types of the pipe threads.

【Answer】

The combination of internal and external threads is called "engagement". If you use the wrong combination without knowing, serious problems can occur. Please refer to the explanation below. It is even more difficult to understand today because the current JIS standard (ISO compliant standard) and the old JIS standard for internal threads and external threads are the same threads with new symbols.

【Description】

The combination of pipe threads can be divided roughly into two types, one is used to seal the threads and the other is used for mechanical coupling.
* Engagement for sealing the threads is used for pipes that allow oil or gas to pass through without leaking.
* Engagement for mechanical joints are used in pipes for electric cables or joining threads for water equipment, where leaking is not a problem.

Combination of pipe threads for seal ability

External taper pipe threads		⟺	Internal taper pipe threads	
Current JIS standard	R		Current JIS standard	Rc
Old JIS standard	PT		Old JIS standard	PT

Internal parallel pipe threads for taper pipe threads	
Current JIS standard	Rp
Old JIS standard	PS

The ⟺ indicates the possible combinations.
It's not possible to use pipe threads designed for sealing in combination with those designed for mechanical joints.
<Remarks>
1. The external taper pipe threads "R" and "PT" and the internal taper pipe threads "Rc" and "PT" have the same values and can be used in combination.
2. Internal parallel pipe threads for taper pipe threads "Rp" and "PS" have the values and can be used in combination.
3. External parallel pipe threads "G" and "PF" are set by the same standard value.
4. Internal parallel pipe threads "G" is set by the same standard value as "Class A of PF".

Combination of pipe threads for mechanical joint

External parallel pipe threads		⟺	Internal parallel pipe threads	
Current JIS standard	G		Current JIS standard	G
Old JIS standard	PF		Old JIS standard	PF

Simply put, the current JIS standard and the old JIS standard are the same, only the symbols have changes. However, please be careful about the difference in the use between "sealing" and "mechanical" joints.