

**Partial List of Solutions to Tapping Problems**

| application                  | symptom                   | common cause                 | remedy                              |
|------------------------------|---------------------------|------------------------------|-------------------------------------|
| <b>general</b>               | gage out of limits        | tap size and gage mismatch   | select tap size for gage            |
|                              | oversize thread           | alignment, spindle feed      | correct                             |
|                              | oversize at top           | runout or alignment          | correct                             |
|                              | go gage binds part way    | worn tool, tap cuts off lead | replace tap, synchronous holder     |
|                              | thread shaving            | feed error, high axial force | programme, synchronous holder       |
|                              | chipping                  | high cutting force, worn tap | tap geometry, replace tap           |
|                              | breakage                  | chip jamming flutes          | tap geometry, tapping depth         |
|                              | —                         | worn tool, high torque       | replace tap with new tool           |
|                              | short life, low speed     | excessive wear               | SC or HSS-E-PM HP taps              |
| <b>steel</b>                 | birdnest blind hole       | long, ductile chips          | GT30 GP6505 (oxide), peck feed      |
|                              | chipping                  | high material hardness       | GT00, GT02 WP31MG (TiN)             |
|                              | breakage in blind holes   | hole depth >2D, chip jamming | GT04 WH36MG (TiN/MoS <sub>2</sub> ) |
| <b>stainless steel</b>       | oversize thread, low life | galling                      | GT20, GT30 GM6515 (TiN-CrC/C)       |
|                              | short life                | work hardened core hole      | replace drill                       |
| <b>cast iron</b>             | excessive wear            | abrasion                     | GT40 GP6520 (TiCN)                  |
| <b>aluminium, cast</b>       | excessive wear            | high silicon                 | GT40 GP6520 (TiCN)                  |
| <b>aluminium, wrought</b>    | oversize thread           | galling                      | GT70, GT80 WN48EG (DLC)             |
| <b>nickel, cobalt alloys</b> | short life                | high cutting temperature     | GT10, GT12 WS32MG (TiCN)            |
| <b>titanium</b>              | short life                | high cutting temperature     | GT14, GT16 WN35MG (TiN-DLC)         |