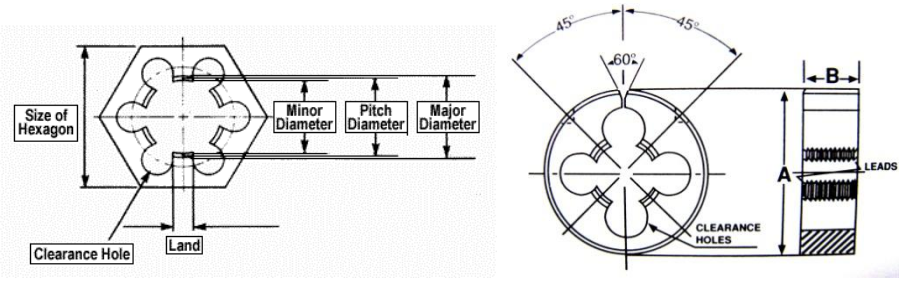
DIES & DIE NUTS

DIES are usually round and are used for cutting external threads. They can be held in a Die Stock for hand operation or in a Die Holder for use by machine. Dies are usually split which enables adjustment for precision, and also to extend the life of the die as it wears. They can also be solid which makes them fixed. Taper thread dies (NPT, BSPT) are usually solid. The lead at the front (etched) face is normally 3 pitches, for standard threading, and 2 pitches at the back face for closer threading, or soft materials.

DIE NUTS are hexagonal, for turning with a wrench or spanner, and are usually used for repairing damaged threads.



Many of the practices employed in tapping also apply to threading with dies. If you do encounter problems the following may help:-

TROUBLESHOOTING

DIE BREAKS
WORK PIECE DIAMETER TOO BIG
SPEED TOO HIGH
DIE MISALIGNED
WORK PIECE NOT CHAMFERED
DIE OVER-ADJUSTED

DIE WEARS QUICKLY
WRONG RAKE ANGLE FOR MATERIAL
SPEED TOO HIGH
INCORRECT FEED RATE

POOR FINISH (ONE FLANK)
INCORRECT FEED RATE

POOR FINISH (BOTH FLANKS)
CLEARANCE HOLES BLOCKED
BAR DIAMETER TOO BIG
SPEED TOO LOW
WORK PIECE NOT CHAMPHERED
INCORRECT OR LACK OF LUBRICANT
WRONG RAKE ANGLE FOR MATERIAL

COLD WELDING
WORK PIECE DIAMETER TOO BIG
SPEED TOO LOW
INCORRECT OR LACK OF LUBRICANT
WRONG RAKE ANGLE FOR MATERIAL
CLEARANCE HOLES BLOCKED

THREAD UNDERSIZE
DIE MISALIGNED
SPEED TOO LOW
INCORRECT OR LACK OF LUBRICANT

THREAD OVERSIZE
PULLING OFF TOO HARD

DIE CHIPPING
CLEARANCE HOLES BLOCKED
WORK PIECE NOT CHAMPHERED
BAR DIAMETER TOO BIG
SPEED TOO HIGH