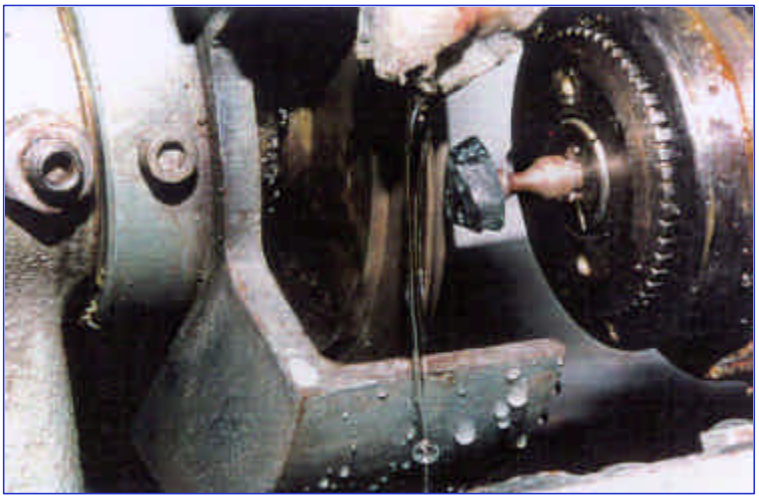
Elementi costruttivi del tornio

1

Il tornio

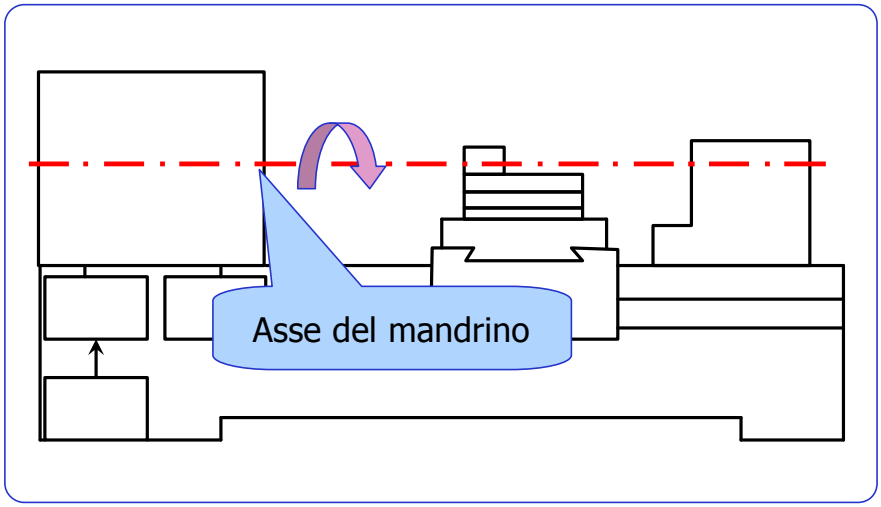
Particolare del mandrino



I torni

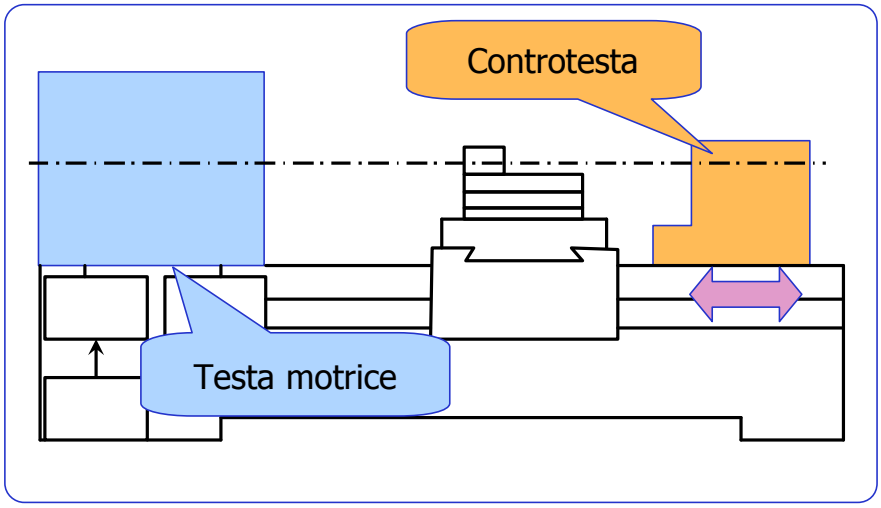
- Torni paralleli
- Torni semiautomatici a torretta
- Torni frontali e verticali
- Torni automatici
- Torni a copiare
- Torni a controllo numerico

Schema di un tornio parallelo

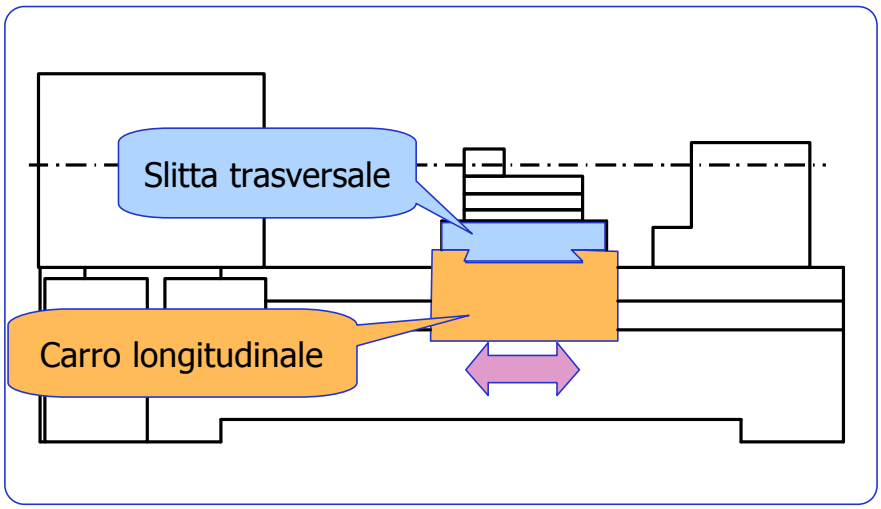


Il mandrino

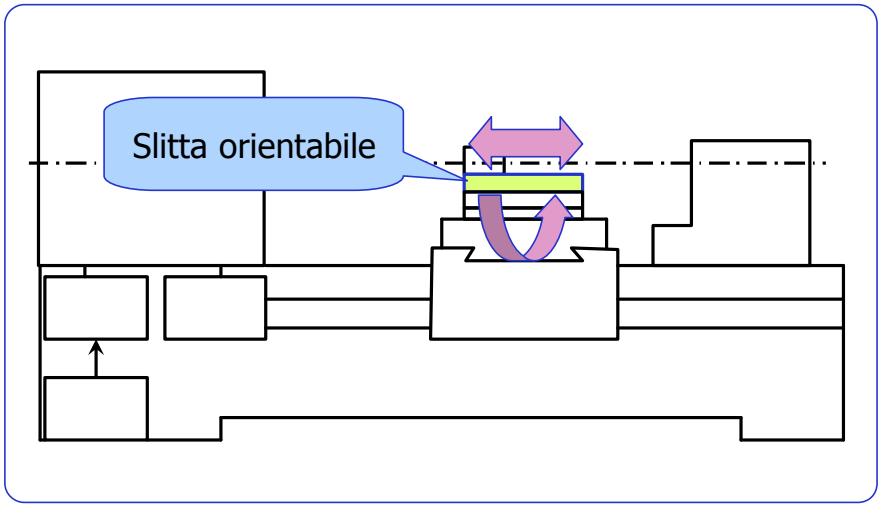
Schema di un tornio parallelo



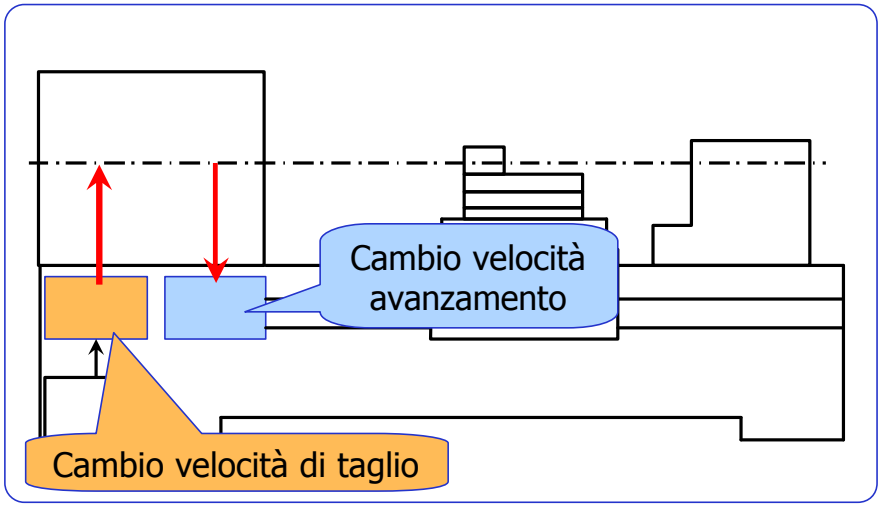
Schema di un tornio parallelo



Schema di un tornio parallelo



Schema di un tornio parallelo



Il tornio a C.N.

Le operazioni di tornitura

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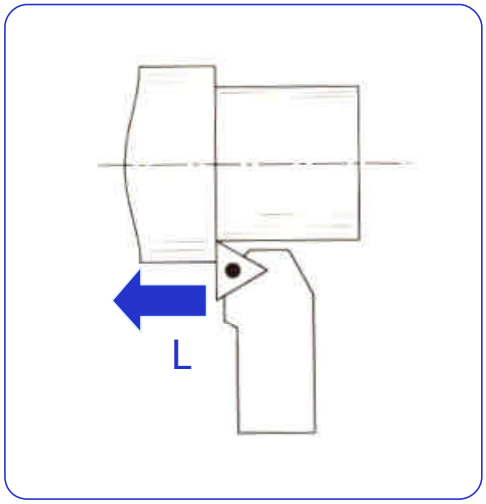
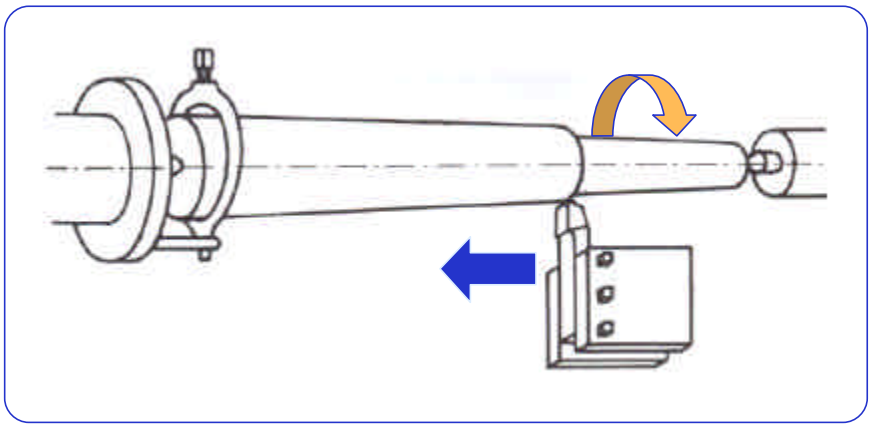
Operazioni di tornitura

- Tornitura cilindrica
- Tornitura conica
- Tornitura piana
- Tornitura di superfici complesse
- Filettatura
- Formatura di gole esterne e interne
- Troncatura, foratura, godronatura

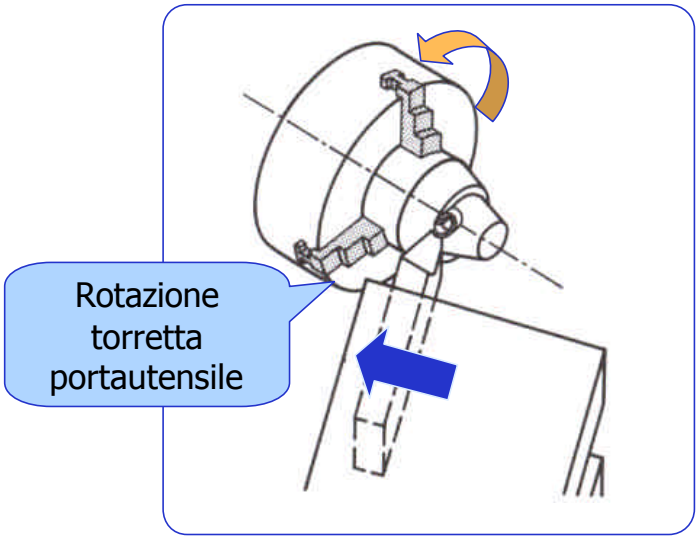
Tornitura cilindrica esterna



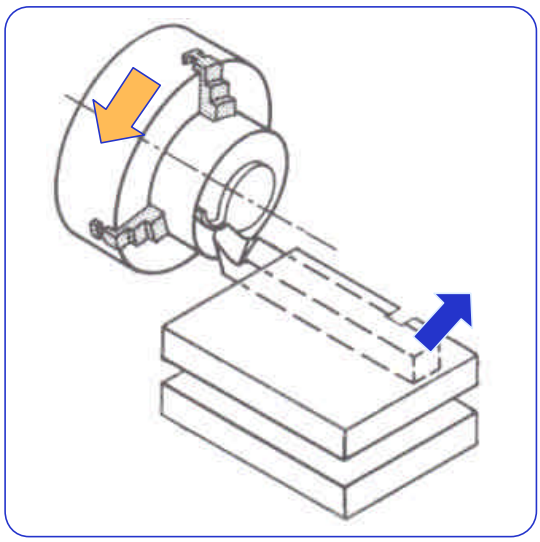
Tornitura conica



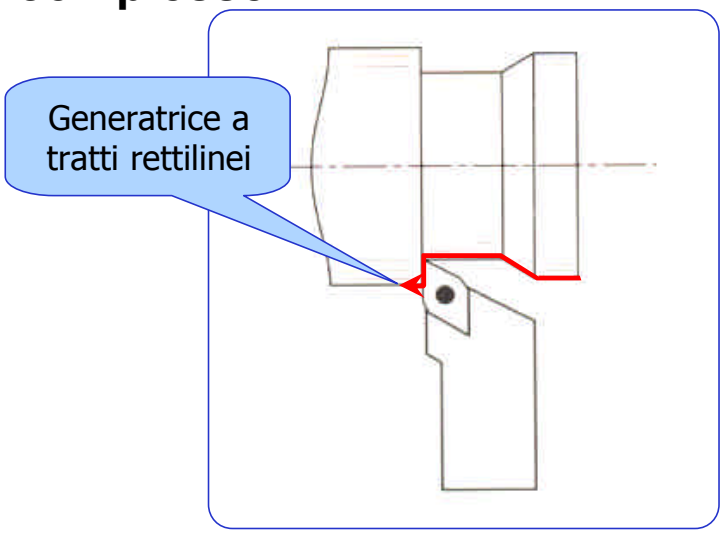
Tornitura conica



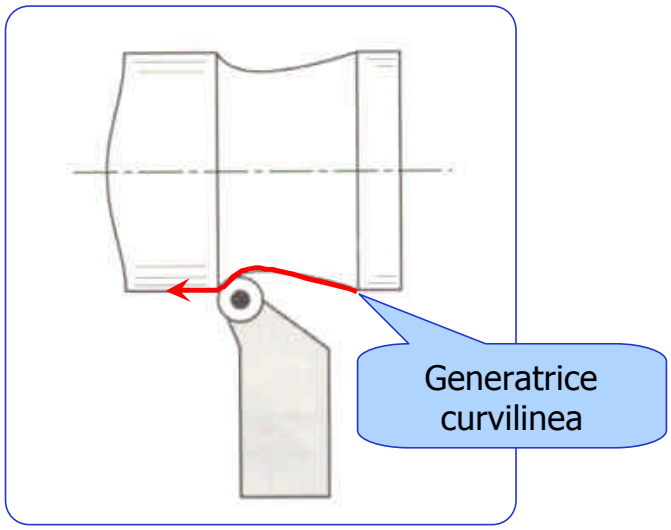
La tornitura piana (sfacciatura)



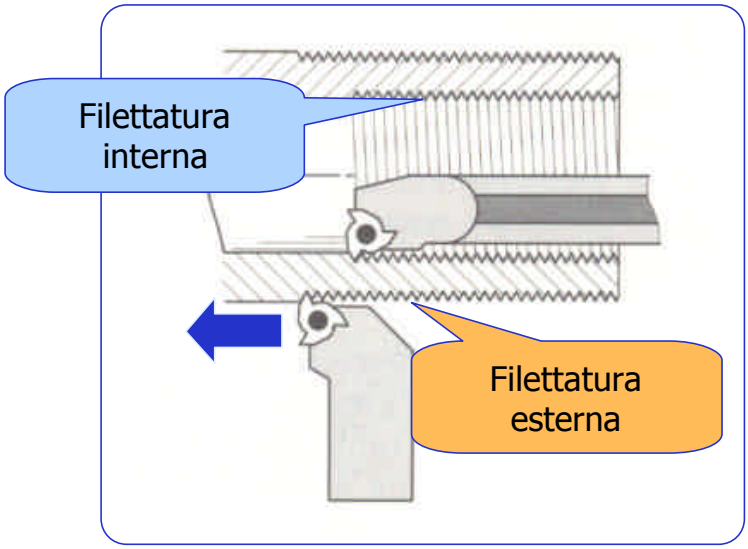
Tornitura di superfici esterne complesse



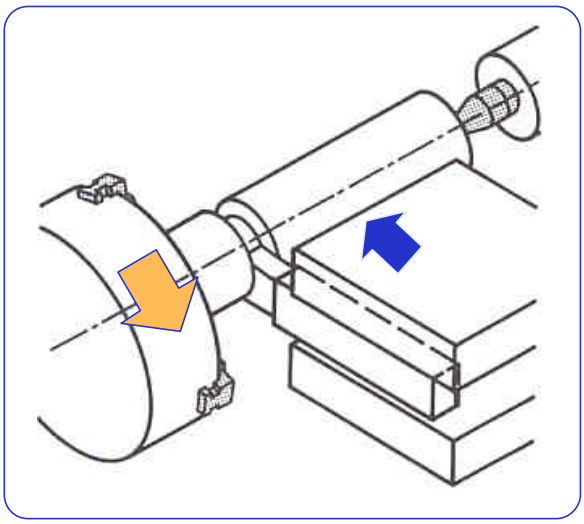
Tornitura di superfici esterne complesse



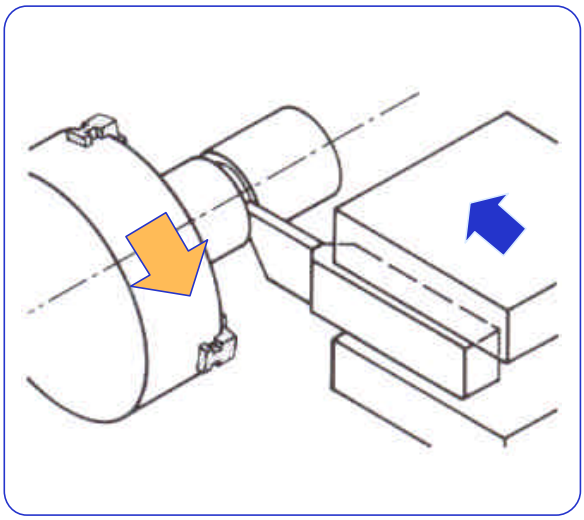
La filettatura



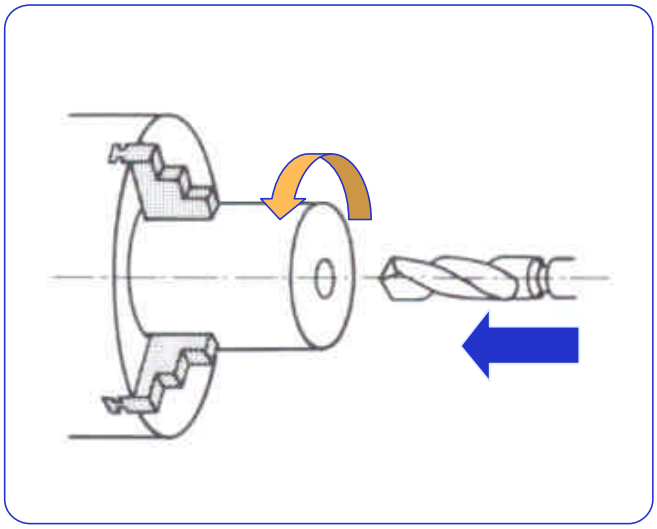
Formatura di gole ad avanzamento frontale



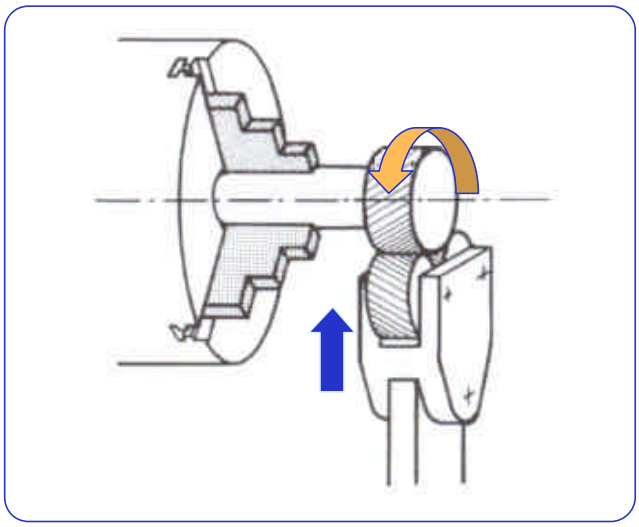
La troncatura



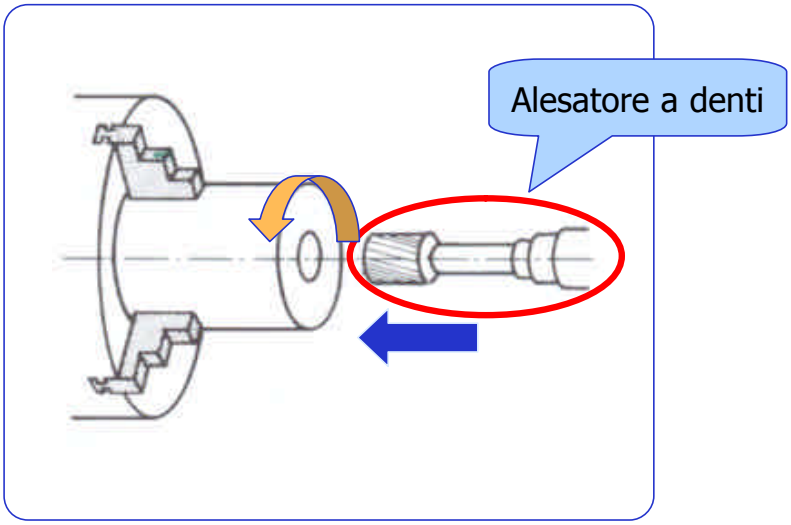
Foratura con punta elicoidale



Operazione di godronatura



Allisciatura



I parametri di taglio

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Variabili caratteristiche del processo

- Portata volumetrica di truciolo:

$$MRR = 1000 \cdot p \cdot a \cdot v_t$$

$$D_m = \frac{D_{max} + D_{min}}{2}$$

$$MRR = 1000 \cdot p \cdot a \cdot \frac{\pi \cdot D_m \cdot n}{1000} \quad \left[\frac{mm^3}{min}\right]$$

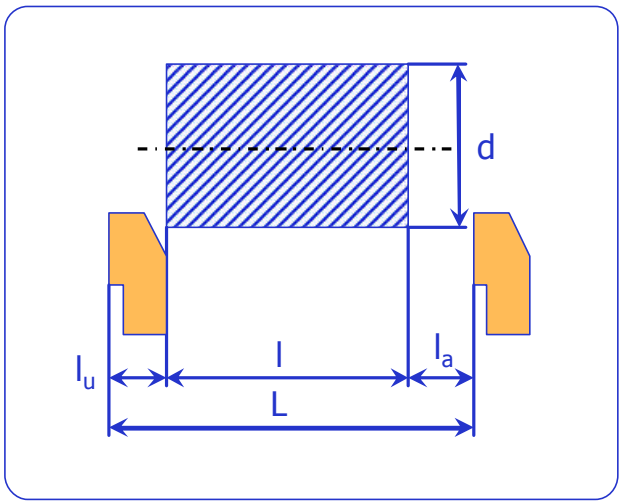
Variabili caratteristiche del processo

- Tempo di lavorazione

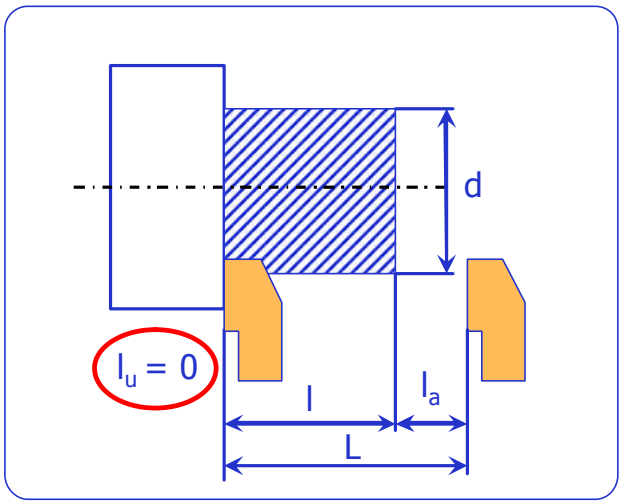
$$T_{lav} = \frac{l + l_a + l_u}{a \cdot n} \quad [min]$$

- l : lunghezza del pezzo
- l_a : extracorsa in entrata
- l_u : extracorsa in uscita

Segmenti di lavorazione, tornitura passante



Schema per tornitura con spallamento



Sommario della lezione

- Elementi costruttivi del tornio
- Le operazioni di tornitura
- I parametri di taglio