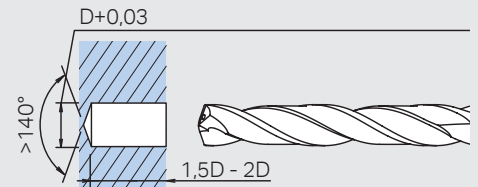


# Strategy for drilling depths 10-30D

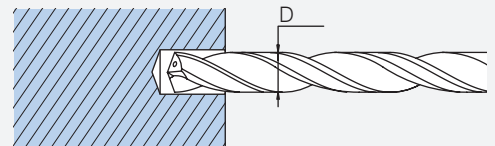
## Drill pilot hole

- $\varnothing +0,03$  mm
- Point angle  $>140^\circ$
- $1,5D - 2D$  deep

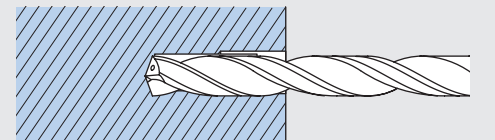


## Insert ADO deep hole drill until 0,2 mm above hole bottom

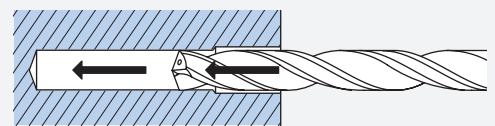
- $S = 500$  rev/min-1
- $V_f = 500$  mm/min
- Without coolant pressure
- Rotation left (optional)



## Launch coolant and machining RPM

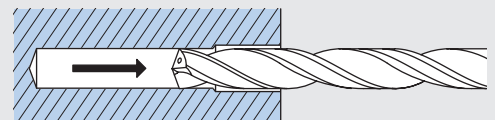


## Feed rate 100% until final drilling depth



When reaching final drilling depth, lower the RPM to 500 rev/min. Reverse drill out of the hole with high feed (e.g.  $V_f = 6'000$  mm/min).

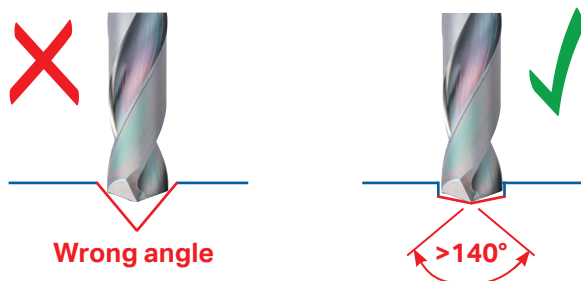
**Do not reverse with max. feed!**



## Drilling pilot hole

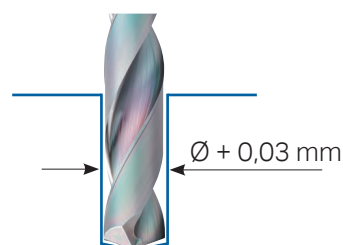
The point angle is important. It must always be larger than that of the following tool so that the point of the deep hole drill hits the center of the of the pilot hole exactly!

- Position accuracy
- Runout



The diameter should be slightly larger than that of the following tool!

- Friction
- Wear



# Pilot drilling

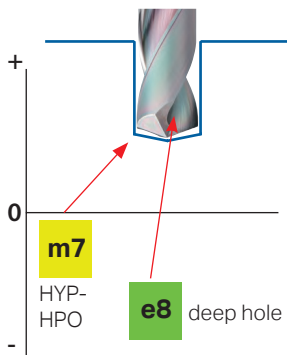
## ADO-PLT

- Point angle 160°
- Outer diameter + 0,03 mm



## „HYP-HPO“

- HYP-HPO are manufactured in outer diameter tolerance m7 and point angle >140°
- ADO deep hole drills are manufactured with outer diameter tolerance e8 and point angle <140°.



Dimensional tolerance for shafts, frequently used fits

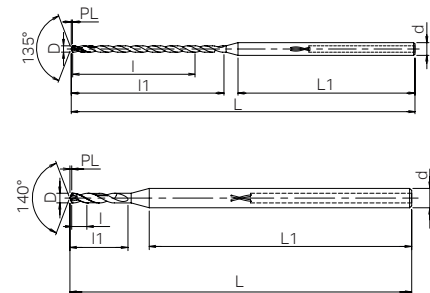
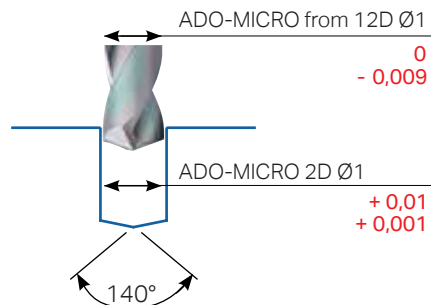
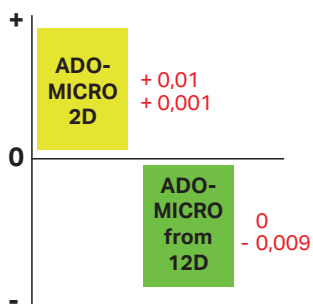
Reference dimension (mm)	Tolerance limit class															
	b9	c9	d8	d9	e7	e8	e9	f6	f7	f8	g5	g6	h5	h6	h7	m7
-	3	-140	-60	-20	-20	-14	-14	-6	-6	-6	-2	-2	0	0	0	+12
		-165	-85	-34	-45	-24	-28	-39	-12	-16	-20	-6	-8	-4	-6	-10
3	6	-140	-70	-30	-30	-20	-20	-10	-10	-10	-4	-4	0	0	0	+16
		-170	-100	-48	-60	-32	-38	-50	-18	-22	-28	-9	-12	-5	-8	-12
6	10	-150	-80	-40	-40	-25	-25	-13	-13	-13	-5	-5	0	0	0	+21
		-186	-116	-62	-76	-40	-47	-61	-22	-28	-35	-11	-14	-6	-9	-15
10	14	-150	-95	-50	-50	-32	-32	-16	-16	-16	-6	-6	0	0	0	+25
		-193	-138	-77	-93	-50	-59	-75	-27	-34	-43	-14	-17	-8	-11	-18
14	18															+7

## ADO-MICRO 2D

- Among the ADO-MICRO drills, only ADO-MICRO 2D has a plus tolerance on the outer diameter
- The point angle of the ADO-MICRO 2D drills is 140°



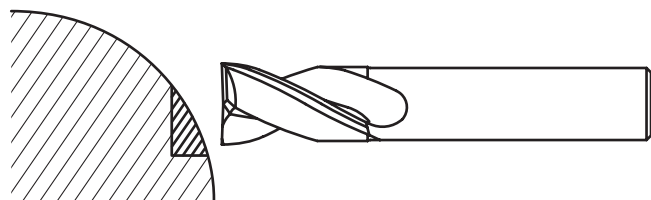
Because the outside diameters of ADO-MICRO 12D and larger are tolerated to "minus" and the point angle is 135°, they are compatible with the ADO-MICRO 2D as pilot drills!



## Pilot drilling on round / inclined surfaces

- The ADF series drills are suitable for pilot drilling on round / inclined surfaces

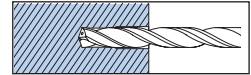
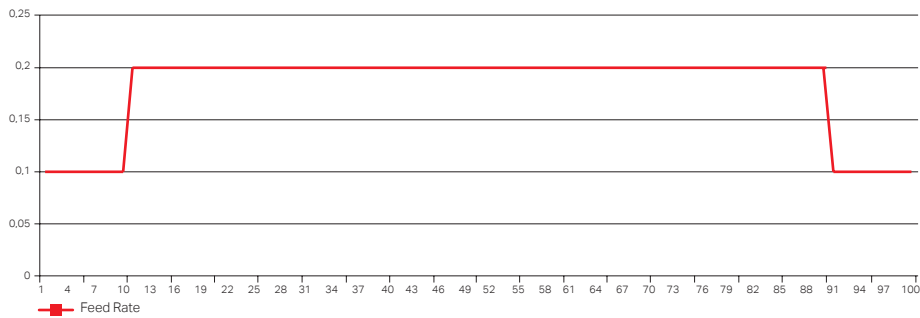
## ADF



# Optimizing tool life

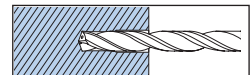
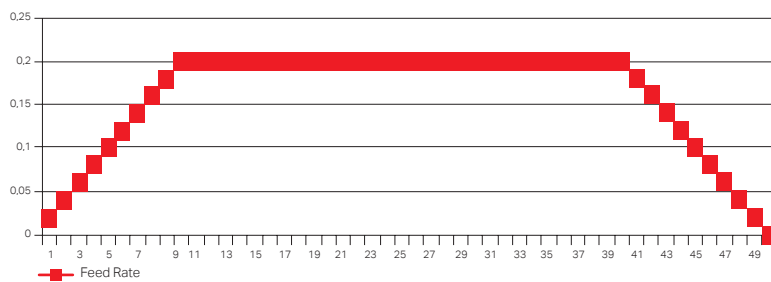
Strategies for optimizing the tool life

## Pre-drilling with reduced feed rate



- Reduce feed rate to 50% until drill has reached 1xD drilling depth
- Reduce feed rate to 50% before drill exits hole

## Pre-drilling with „FLIN“ (Siemens - Sinumerik)



- Linear increase of feed rate from 50% to 100% until drill reaches 1xD depth
- Linear decrease of feed rate to 50% before drill exits the hole