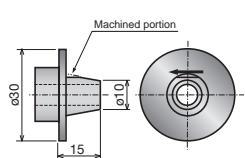




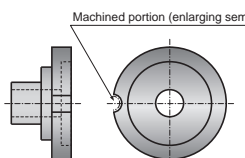

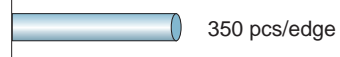


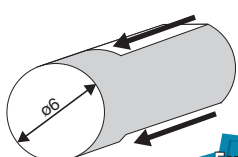

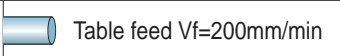
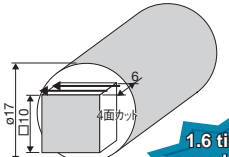

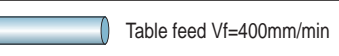


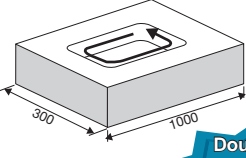


Case studies


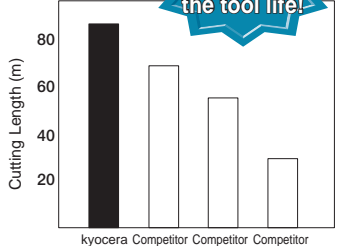
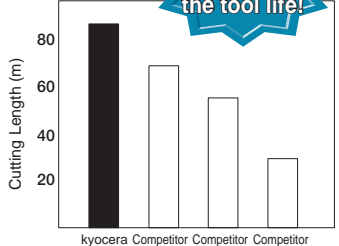
<h3>9SMnPb28</h3> <ul style="list-style-type: none"> • OA parts • $V_c = 88\text{m/min}$ ($n=3,500\text{min}^{-1}$) • $a_p=0.5\text{mm}$ • $f_z=0.23\text{mm/t}$ ($V_f=3200\text{mm/min}$) • WET • 4FESM080-190-08 	
MEGACOAT	 230 pcs/edge
Competitor Coating E	 100 pcs/edge
<p>•Kyocera showed 2.3 times longer tool life than Competitor E. •Kyocera's new coating technology resolved edge fracturing and provided stability compared with Competitor E. •Kyocera showed superior finished surface compared with Competitor E.</p>	
 MEGACOAT (Number of workpieces processed: 230 pcs/edge)	 Competitor Coating E (Number of workpiece processed: 100 pcs/edge)
Evaluation from the customer	

<h3>17Cr3</h3> <ul style="list-style-type: none"> • Automotive parts • $V_c = 40\text{m/min}$ ($n=3,200\text{min}^{-1}$) • $a_p=0.1\text{mm}$ • $f_z=0.01\text{mm/t}$ ($V_f=70\text{mm/min}$) • WET • 2FESM040-110-06 	
MEGACOAT	 700 pcs/edge
Competitor Coating F	 350 pcs/edge
<p>•Kyocera processed twice as many workpieces compared to Competitor F. •Competitor H is limited to 350 workpieces due to excessive wear. Kyocera prevents chipping thereby enabling long-life and stabilized machining.</p>	
 MEGACOAT (Number of workpieces processed: 700 pcs/edge)	 Competitor Coating E (Number of workpiece processed: 350 pcs/edge)
Evaluation from the customer	

<h3>C45</h3> <ul style="list-style-type: none"> • Machine parts • $V_c=100\text{m/min}$ ($n=3,980\text{min}^{-1}$) • $a_p=0.45\text{mm}$ • $f_z=0.05\text{mm/t}$ ($V_f=800\text{mm/min}$) • WET • 4 flutes • Tool life 4000 pcs/edge • 4FESW080-080-08 	
4FESW080-080-08	 Table feed $V_f=800\text{mm/min}$
Competitor Coating G	 Table feed $V_f=200\text{mm/min}$
[Competitor Coating G] $\phi 8 \cdot 4$ flutes $V_c=63\text{m/min}$ ($n=2508\text{min}^{-1}$) $a_p=0.45\text{mm}$ Tool life 4000 pcs/edge $f_z=0.02\text{mm/t}$ ($V_f=200\text{mm/min}$)	User comments: •Was able to increase both cutting speed and table feed rate. •Despite the increase in machining conditions, burr formation decreased.
Evaluation from the customer	

<h3>9SMn28</h3> <ul style="list-style-type: none"> • Machine parts • $V_c=100\text{m/min}$ ($n=3,200\text{min}^{-1}$) • $a_{px} a_e=3.5 \times 3.0\text{mm}$ • $f_z=0.05\text{mm/t}$ ($V_f=640\text{mm/min}$) • WET • 4 flutes • 4FESW100-080-10 	
4FESW100-080-10	 Table feed $V_f=640\text{mm/min}$
Competitor Coating H	 Table feed $V_f=400\text{mm/min}$
[Competitor Coating H] $\phi 7 \cdot 4$ flutes $V_c=44\text{m/min}$ ($n=2000\text{min}^{-1}$) $a_p \times a_e=3.5 \times 3.0\text{mm}$ $f_z=0.05\text{mm/t}$ ($V_f=400\text{mm/min}$)	User comments: •Automatic general purpose end mills have a shorter edge length with improved rigidity, which enabled an increase from conventional $\phi 7$ to $\phi 10$, thus improving machining conditions. •Compared to conventional tools, tool life improved five times.
Evaluation from the customer	

<h3>Hardened steel (60HRC)</h3> <ul style="list-style-type: none"> • Mold • $V_c=60\text{m/min}$ ($n=1,194\text{min}^{-1}$) • $a_p \times a_e=40 \times 0.3\text{mm}$ • $f_z=0.056\text{mm/t}$ ($V_f=400\text{mm/min}$) • 6 flutes • 6HFSM160-420-16 	
6HFSM160-420-16	 Amount of chip extraction 4.8cc/min Tool life: 10 pcs/ edge
Competitor Coating I	 Amount of chip extraction 2.4cc/min Tool life: 5pcs/ edge
[Competitor Coating I] $\phi 16 \cdot 6$ flutes $V_c=30\text{m/min}$ ($n=597\text{min}^{-1}$) $a_p \times a_e=40 \times 0.3\text{mm}$ $f_z=0.056\text{mm/t}$ ($V_f=200\text{mm/min}$)	User comments: The cutting speed and table feed rate is doubled compared to competitor's coated product I. The cutting edge conditions are excellent and the tool life is also doubled.
Evaluation from the customer	

<h3>X153CrMoV12</h3> <ul style="list-style-type: none"> • Block • $V_c=70\text{m/min}$ ($n=3,700\text{min}^{-1}$) • $a_p \times a_e=3 \times 0.12\text{mm}$ • $f_z=0.04\text{mm/t}$ ($V_f=800\text{mm/min}$) • DRY • 6 flutes • 6HFSM060-170-06 	
6HFSM060-170-06	 Three times the tool life!
Competitor Coating J,K,L	
[Competitor Coating J,K,L] $\phi 6 \cdot 6$ flutes $V_c=70\text{m/min}$ ($n=3700\text{min}^{-1}$) $a_p \times a_e=3 \times 0.12\text{mm}$ $f_z=0.04\text{mm/t}$ ($V_f=800\text{mm/min}$)	Shouldering: Compared to competitor's coated products, the 6HFSM has three times longer tool life.
Internal evaluation	