

PML-4F-G★PM-4F-G★PML-4FL-G★PM-4FL-G(general cutting)

Workpiece material	Cast iron, Carbon steel, Alloy steel ~30HRC		Carbon steel, Alloy steel ~40HRC		Pre-hardened steel, quenched and tempered steel ~45HRC		Pre-hardened steel, quenched and tempered steel ~50HRC		Hardened steel ~55HRC	
	Diameter (mm)	Rotating speed (min ⁻¹)	Feed speed (mm/min)	Rotating speed (min ⁻¹)	Feed speed (mm/min)	Rotating speed (min ⁻¹)	Feed speed (mm/min)	Rotating speed (min ⁻¹)	Feed speed (mm/min)	Rotating speed (min ⁻¹)
1	20000	190	20000	70	20000	150	20000	95	20000	85
2	15000	305	11150	80	15000	265	13000	140	11140	125
3	14000	515	7500	95	10600	395	8500	260	7430	230
4	10800	530	5500	100	8000	4055	6500	265	5570	235
5	8200	555	4500	100	6400	425	5000	280	4460	245
6	7000	570	3700	100	5300	435	4200	283	3710	245
8	5200	560	2800	100	4000	430	3200	290	2785	255
10	4200	555	2200	100	3200	425	2500	275	2230	240
12	3500	555	1850	100	2650	425	2100	275	1855	240
14	3000	515	1600	100	2300	395	1800	260	1590	230
16	2600	515	1400	95	2000	395	1600	260	1390	230
18	2300	505	1250	80	1800	390	1400	255	1240	220
20	2050	505	1100	80	1600	390	1250	255	1115	220

Maximum cutting depth	Diagram 1: $a_e=0.1D$, $a_p=1.5D$		Diagram 2: $a_e=0.05D$, $a_p=1.5D$		Diagram 3: $a_e=0.03D$, $a_p=1.5D$															
		<table border="1"> <thead> <tr><th>Diameter range</th><th>Cutting depth a_p</th></tr> </thead> <tbody> <tr><td>$\varnothing 1 \leq D < \varnothing 3$</td><td>0.15D</td></tr> <tr><td>$\varnothing 3 \leq D < \varnothing 6$</td><td>0.3D</td></tr> <tr><td>$\varnothing 6 \leq D < \varnothing 20$</td><td>0.5D</td></tr> </tbody> </table>	Diameter range	Cutting depth a_p	$\varnothing 1 \leq D < \varnothing 3$	0.15D	$\varnothing 3 \leq D < \varnothing 6$	0.3D	$\varnothing 6 \leq D < \varnothing 20$	0.5D		<table border="1"> <thead> <tr><th>Diameter range</th><th>Cutting depth a_p</th></tr> </thead> <tbody> <tr><td>$\varnothing 1 \leq D < \varnothing 3$</td><td>0.1D</td></tr> <tr><td>$\varnothing 3 \leq D$</td><td>0.2D</td></tr> </tbody> </table>	Diameter range	Cutting depth a_p	$\varnothing 1 \leq D < \varnothing 3$	0.1D	$\varnothing 3 \leq D$	0.2D		
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- 1.The above table shows the standard value of side milling. When milling slot, 50%~70% of rotating speed and 40%~60% of feed speed stated above are recommended as standard.
- 2.Please select high-precision machine and tool holder.
- 3.Please use air blow or cutting liquid with high mist retardant property.
- 4.Down milling is recommended in the case of side milling.
- 5.When the machine rigidity and workpiece fixture stability is low, vibration and abnormal noise may be generated. Please reduce the rotating speed and feed speed stated above correspondingly.
- 6.Make overhang of tool as short as possible in conditions of non-interference.

Indexable milling tools

Solid carbide end mills

Cutting parameters for PML/PM series end mills

PML-4F-G★PM-4F-G★PML-4FL-G★PM-4FL-G(high speed side milling)

Workpiece material	Cast iron, Carbon steel, Alloy steel ~30HRC		Carbon steel, Alloy steel ~40HRC		Pre-hardened steel, quenched and tempered steel ~45HRC		Pre-hardened steel, quenched and tempered steel ~50HRC		Hardened steel ~55HRC		
Cutting speed	300m/min		250 m/min		200 m/min		150 m/min		100 m/min		
Diameter (mm)	Rotating speed (min ⁻¹)	Feed speed (mm/min)	Rotating speed (min ⁻¹)	Feed speed (mm/min)	Rotating speed (min ⁻¹)	Feed speed (mm/min)	Rotating speed (min ⁻¹)	Feed speed (mm/min)	Rotating speed (min ⁻¹)	Feed speed (mm/min)	
6	15915	1075	13260	900	10600	715	7960	535	5300	360	
8	11935	1070	9950	885	7960	715	5970	535	3980	360	
10	9550	1015	7960	870	6370	700	4775	525	3180	345	
12	7960	1015	6630	870	5300	700	3980	525	2650	345	
14	6820	975	5685	815	4550	650	3410	570	2275	325	
16	5970	975	4975	815	3980	650	2985	570	1990	325	
18	5305	975	4420	815	3540	650	2650	570	1770	325	
20	4775	975	3980	815	3180	650	2390	570	1590	325	
Maximum cutting depth											

1. Please select high-precision machine and tool holder.
2. Please use air blow or MQL(minimum oil mist cooling).
3. Down milling is recommended in the case of side milling.
4. When the machine rigidity and workpiece fixture stability is low, vibration and abnormal noise may be generated. Please reduce the rotating speed and feed speed stated above correspondingly.
5. Make overhang of tool as short as possible in conditions of non-interference.