

ELECTROLYTIC POLISHING VS. PLASMA POLISHING

	Electrolytic Polishing	Plasma Polishing
Electrotechnical/ physical attributes	<ul style="list-style-type: none"> • Operating voltage 0V - 20V DC • Current density 0.05 - 0.5 A/cm² adjustable • 24KW with a bath volume of 600l • Bath temperature 40 - 65°C 	<ul style="list-style-type: none"> • Operating voltage > 200V DC • Current density 0.12 A/cm² not adjustable • 100 KW with a bath volume of 600l • Bath temperature 85 - 95°C
Chemical characteristics	<ul style="list-style-type: none"> • Use of a highly concentrated acid as electrolyte (phosphoric and sulphuric acid) • pH value: approx. 1 	<ul style="list-style-type: none"> • Use of non-toxic compounds in low concentrations • The electrolytes are environmentally friendly • pH values: 3.5 - 7.5
Pretreatment	<ul style="list-style-type: none"> • The parts must be cleaned and degreased • In some cases pickling is necessary 	<ul style="list-style-type: none"> • No cleaning required • No pickling required
Polishing time	<ul style="list-style-type: none"> • 5 - 20 min 	<ul style="list-style-type: none"> • 1 - 5 min
Material removal rate and surface modification	<ul style="list-style-type: none"> • 15 - 60 µm/minute • Rounding of edges and cut surfaces • Improvement of corrosion resistance 	<ul style="list-style-type: none"> • 3 - 6 µm/minute • Minimal rounding of edges and cut surfaces • Very good geometric precision • Improvement of corrosion resistance
Achievable roughness RA (µm)	<ul style="list-style-type: none"> • Reduction of roughness RA up to 50 % • approx. 0.2 µm realizable 	<ul style="list-style-type: none"> • Reduction of roughness RA up to 85 % • approx. 0.03 µm realizable
Aftertreatment	<ul style="list-style-type: none"> • The parts must be freed from acid residues 	<ul style="list-style-type: none"> • The parts are rinsed with water