

CATALOGUE



Consumables



Replacement Parts and Accessories



Trainings

**Finegrinding, Lapping and Polishing Technology**  
for High-precision Surface Finishing

**CONSUMABLES & TOOLS**

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# CONTENTS

## Overview

### FOREWORD

FLP MICROFINISHING

03



### CONSUMABLES

Lapping and Polishing Agents

SILICUM CARBIDE Lapping Powder	04
BORUM CARBIDE Lapping Powder	04
High-grade CORUNDUM Lapping Powder	05
Cerium Oxide CMP	05
Diamond Paste	06
Diamond Powder	06
Diamond Suspension	07
Diamond Spray	07
Lapping and Polishing Oil	08
Lapping and Polishing Fluid	08
Honing Oil for Fine Grinding in Diamond and CBN Processes	09
Cleaning Powder and Pellets	09
Cooling Additives for Tool Cooling	10
Preservatives	10

Lapping and Polishing Fluids

Cleaning / Rust Protection / Cooling



### REPLACEMENT PARTS AND ACCESSORIES

Lapping and Polishing Tools

Lapping, Polishing and Base Wheels	11
Conditioning Rings	11
Load Plates for Workpieces	12
Ceramic Pellets	12
Templates	12
Foam and Felt Pads for Load Plates	13
Bound Grain Wheels	13
Diamond and CBN Wheels	13
Polishing Film and Polishing Pads	14
Mounting Resins and Adhesive Resins	14
Optical Polishing Pitch	14
Carrier Wheels	15
Tools and Templates for Conditioning and Re-sharpening	15
Hand Lapping Wheels	16
Hand Lapping Kit	16
Replacement Rollers	16
Dosing Unit for Lapping Agents	17
Spray Unit for Diamond Liquids	17
Tanks und Cascades	17
Cooling Unit	18
Cleaning Unit	18
Centrifuges	18

Conditioning and Re-sharpening

Accessories



### METROLOGY

Flatness and Surface Inspection

Monochromatic Lamps, Replacements Bulbs and Accessories	19
Optical Flats	19
Polishing and Finishing Table	19
Polishing Paper and Finishing Paper	20
Diamond Abrasive Paper	20
Diamond Film	20
Straight Edges for Measuring and Inspecting	21
Master Setting Block	21
Measuring Gauges	21
Roughness Tester	22
Measuring and Inspection Device for Flatness Measuring	22
Surface Measuring Technology for High-end Surfaces	22



### FOLLOW-UP PROCESSES

Cleaning / Rust Protection / Cooling

Ultrasonic Cleaning Tanks and Rinse Tanks	23
Cleaning Chemicals for Ultrasonic Cleaning	23
Ultrasonic Cleaning Systems, Rinse Tanks and Dryers	23
Anti-corrosion Packaging	24
Skin Protection and Skin Care	25
Auxiliary material	25

Handling and Packaging



### TRAININGS AND CONTRACTS

Seminars

Basic Seminar – Crash Course Lapping and Polishing	26
Advanced Seminar – Fine Grinding, Flat Honing	26
Technology Seminar – Optimising Working Processes	26
Service Contracts	27
Maintenance Contracts	27

Service and Maintenance Contracts

# FOREWORD

FLP MICROFINISHING

## Your System Provider for Surface Microfinishing

As a tradition-steeped family company with decades of experience, the FLP Group has evolved into a modern and dynamic company with a global reach. The basis of this development are market proximity, consistent customer orientation and innovative strength.

Reap the benefits of our collective expertise and experience as a system provider with close integration between machine design and manufacturing, tooling development, international trading as well as micro-chip removal services offered by our large subcontracting department.

As a system provider we offer complex solutions to our customers: At the start of a cooperation we analyse our customers' wishes and requirements to draw up a tailor-made joint project. This may be the design and manufacture of a machine or the carrying out of micro-chip removal services for our customers.

Our range of services also includes the delivery of accessories, consumables and replacement parts. Of course we also offer to our customers seminars and training courses covering various aspects of surface finishing.

As a dedicated and competent partner FLP Microfinishing GmbH will gladly assist you with all processes related to high-precision surface finishing.

## Solutions for various industrial sectors:

- Automobile industry
- Vehicle construction
- Machine construction
- Medical engineering
- Clock making
- Pump manufacture
- Optics industry
- Ceramics industry
- Engine manufacture
- Aircraft manufacture
- Electrical industry
- Aerospace industry



Dipl. Ing. (FH) Thomas Rehfeldt  
General Manager

„We grow by focusing on details because precision is our strength.“

# CONSUMABLES

Lapping and Polishing Agents

## SILICUM CARBIDE Lapping Powder



Package size: 5 kg, 25 kg

**High-quality lapping powder for specific requirements**

- Closely graded grain in reproducible qualities
- For treatment of hard and soft metals, alloys, plastic, glas and crystalline materials

Product	Micron	Quality	Basic	Fine grain		High-end
Material	Average size	Norm	Black	Green	Black	Black
FLP SIC F 120	90-105	FEPA	x	x		
FLP SIC F 180	75-90	FEPA	x	x		
FLP SIC F 220	63-76	FEPA	x	x		
FLP SIC F 240	42,5-46,5	FEPA	x	x		
FLP SIC F 280	35-38	FEPA	x	x		
FLP SIC F 320	27,7-30,7	FEPA	x	x	x	
FLP SIC F 360	21,3-24,3	FEPA	x	x	x	
FLP SIC F 400	16,3-18,3	FEPA	x	x	x	
FLP SIC F 500	11,8-13,8	FEPA	x	x	x	
FLP SIC F 600	8,3-10,3	FEPA	x	x	x	x
FLP SIC F 800	5,5-7,5	FEPA	x	x	x	x
FLP SIC F 1000	3,7-5,3	FEPA	x	x	x	x
FLP SIC F 1200	2,5-3,5	FEPA	x	x	x	

## BORON CARBIDE Lapping Powder



Package size: 1 kg, 5 kg

**The superhard alternative to diamond**

- Closely graded grain in reproducible qualities
- For treatment of sintered materials and very hard materials

Product	Micron	Quality	Basic	Fine grain	High-end
Material	Average size	Norm			
FLP BOR F 280	35-38	FEPA		x	
FLP BOR F 320	27,7-30,7	FEPA		x	
FLP BOR F 360	21,3-24,3	FEPA		x	
FLP BOR F 400	16,3-18,3	FEPA	x	x	
FLP BOR F 500	11,8-13,8	FEPA	x	x	
FLP BOR F 600	8,3-10,3	FEPA	x	x	
FLP BOR F 800	5,5-7,5	FEPA		x	x
FLP BOR F 1000	3,7-5,3	FEPA		x	

## HIGH-GRADE CORUNDUM Lapping Powder



Package size: 5 kg, 25 kg

### Specialized product for sensitive materials

- Closely graded grain in reproducible qualities
- For treatment of crystalline and brittle materials

Product	Micron	Quality	Basic	Fine grain	High-end
<b>Material</b>	Average size	Norm			
FLP WCA F 220	63-76	FEPA	x		
FLP WCA F 280	35-38	FEPA	x	x	
FLP WCA F 320	27,7-30,7	FEPA	x	x	
FLP WCA F 360	21,3-24,3	FEPA	x	x	
FLP WCA F 400	16,3-18,3	FEPA	x	x	
FLP WCA F 500	11,8-13,8	FEPA	x	x	
FLP WCA F 600	8,3-10,3	FEPA	x	x	
FLP WCA F 800	5,5-7,5	FEPA	x	x	
FLP WCA F 1000	3,7-5,3	FEPA		x	
FLP WCA F 1200	2,5-3,5	FEPA			x

## Cerium Oxide CMP



Package size:  
5 kg, 10 kg, 25 kg

### Chemical-mechanical polishing agent

- High-quality chemical-mechanical powder concentrate with added fine-grain abrasives
- Treatment of all kinds of glass as well as similar materials, brittle, hard and crystalline materials
- Specially made for final polish of hard glass, quartz and glass ceramics
- Suitable carriers are lapping films and polishing pitch
- Range of application: Finishing of hard glass, quartz and glass ceramics in precision optics, laser optics and micro optics

Product	Micron	Used for	Area of use
<b>Material</b>	Average size		
FLP CER BA	2,1 µm	Cleaning	Mirror glass
FLP CER VF	2,1 µm	Edge polishing	Facets
FLP CER VO	2,5 µm	Pre-polishing	Precision optics
FLP CER EW	2,5 µm	Final polishing	Soft glass
FLP CER EH	2,5 µm	Final polishing	Quartz glass, LCD glass
FLP PM VP 10	-	Pre-polishing	Soft glass
FLP PM VP 40	-	Pre-polishing	Quartz
FLP PM EP 25	-	Final polishing	Soft glass
FLP PM EP 50	-	Final polishing	Quartz

## Diamond Paste



Package size: 5 g, 10 g, 20 g

### For manual application

- Pasty diamond polishing medium, ready for use and with strong adhesion on surfaces
- Closely graded diamond quality in variable concentrations and viscosities

Product	Micron	Concentration		Carrier	
Material	Size	High	Extra	Oil soluble	Water soluble
FLP DPA SF	0,25 µm	x	x	x	
FLP DPA SF	1 µm	x	x	x	x
FLP DPA SF	3 µm	x	x	x	x
FLP DPA SF	6 µm	x	x	x	x
FLP DPA F	9 µm	x	x	x	x
FLP DPA M	15 µm		x	x	
FLP DPA M	30 µm	x	x	x	x
FLP DPA G	45 µm	x	x	x	x

## Diamond Powder



Package size:  
10 kt, 100 kt, 500 kt, 1000 kt,  
25.000 kt

### Diamond powder für polishing and abrading

- Specially selected and precision graded grain qualities ensure excellent abrasion performance and perfect surface finishes
- Grain types chosen based on long-standing experience, specifically for the treatment of soft, hard, brittle or crystalline materials

Product	Micron	Quality	Monocrystalline		Polycrystalline	
Material	Average grain size	ISO 9001	Standard grading	Close grading	Standard grading	Close grading
FLP DP SF	0,0-0,5 µm	x	x	x		
FLP DP SF	0,1-0,25 µm	x	x	x		x
FLP DP SF	0-2 µm	x	x	x	x	x
FLP DP F	2-4 µm	x	x	x	x	x
FLP DP F	4-8 µm	x	x	x	x	x
FLP DP F	6-12 µm	x	x	x	x	x
FLP DP M	15-20 µm	x	x	x		
FLP DP M	20-30 µm	x	x	x		

## Diamond Suspension



**Package size:**  
250 ml, 500 ml, 1000 ml, 5 l, 10 l

### For use in automatic dispensers

- Ready for use suspension made of diamond powder evenly dispersed throughout liquid carriers with added stabilizers
- Even distribution of particles remains stable over whole time of use, ensuring regular and repeatable day-to-day working processes

Product	Micron	Mixable with	Monocrystalline		Polycrystalline	
			Low viscosity	High viscosity	Low viscosity	High viscosity
Material	Average grain size	Oil				
FLP DEM SF	1/4 µm	x	x			
FLP DEM SF	1 µm	x	x			
FLP DEM F	9 µm	x			x	
FLP DEM F	12 µm	x	x	x		
FLP DEM M	15 µm	x		x		
FLP DEM M	15 µm	x				x
FLP DEM M	25 µm	x		x		
FLP DEM M	30 µm	x	x			x

Product	Micron	Mixable with	Monocrystalline	Polycrystalline
			Low viscosity	Low viscosity
Material	Medium grit	Water		
FLP DSU SF	2-4 µm	x		x
FLP DSU SF	2,5-4 µm	x	x	
FLP DSU F	12 µm	x	x	
FLP DSU M	15 µm	x		x

## Diamond Spray



**Package size:**  
150 ml, 200 ml

### For manual lapping and small-scale trials

- Quality grains in medium concentrations
- Ideal for trial finishes, grain changeovers or for refinishing surfaces

Product	Micron	Mono-crystalline	Poly-crystalline	Standard	
				Classified	Concentration
Material	Average grain size				
FLP DPS SF	0,25 µm	150 ml		x	Normal
FLP DPS SF	1,0 µm	150 ml	200 ml	x	Normal
FLP DPS F	3,0 µm	150 ml	200 ml	x	Normal
FLP DPS F	6 µm	150 ml	200 ml	x	Normal
FLP DPS M	9 µm	150 ml	200 ml	x	Normal
FLP DPS M	15 µm	150 ml	200 ml	x	Normal

## Lapping and Polishing Fluids

## Lapping and Polishing Oil

**Package size:**

5 l, 10 l, 25 l, 200 l, 1000 l

**Oil based lapping fluid – The Original –**

- Well-ried carrier liquids for all lapping processes and all commonly used abrasives
- Special additives prevent cementing of lapping powder
- The Original: Often copied, never equalled

Product	Used for	Viscosity	Quality	Suitable grain size		
				VOC	Coarse	Medium
FLP OL 1980	Polishing	Very low	20%			x
FLP OL 1990	Polishing	Low	100%			x
FLP OL 20	Lapping with SIC, BOR, COR	Medium	Without		x	
FLP OL 2000	Lapping with SIC, BOR, COR	Medium	Without	x	x	
FLP OL 2020	Lapping with SIC, BOR, COR Additive prevents conglomerating of lapping particles	Medium	Without	x	x	x

## Lapping and Polishing Fluid

**Package size:**

5 l, 10 l, 25 l, 200 l, 1000 l

**Water-miscible lapping fluid**

- Concentrated fluid to be mixed with water according to grain size
- Offers excellent rust protection on cast lapping wheels, also usable for tool protection

Product	Used for	Suitable grain size			Rust protection
		Coarse	Medium	Fine	
FLP WS 1000	SIC, BOR, COR 240 – 1000	x	x		Yes
FLP WS 2000	Broad usage			x	Yes
FLP WS 3000	SIC, BOR, COR 800 - 1200	x	x	x	Yes
FLP WS 4000	SIC 400 - 600	x	x		Yes
FLP WS 3020	SIC, COR			x	Yes
FLP WS 4020	SIC, COR	x	x		Yes



## Honing Oil for Fine Grinding in Diamond and CBN Processes



Package size: 200 l, 1000 l

**Maximum performance honing oil for high removal rates**

- Material- and tool-specific oil viscosities ensure smooth disposal of removed material
- Special additives for micrograin tools and for treatment of hard metals

Product	Used for			Area of use				
Designation	Tool	Viscosity	VOC	Steel	Non-ferrous metal	Sintered metal	Hard metal	Ceramic
FLP-spezial 30	DIA/CBN	Medium	Without	x	x	x		x
FLP-spezial 40	DIA	High	Without	x		x	x	
FLP-extralight	DIA	Low	92%	x		x		
FLP-HM 80	CBN	Very high	Without		x			
FLP-HM 40	DIA	High	Without				x	x

## Cleaning Powder and Pellets



Package size:  
1 kg, 5 kg, pellets

**For sharpening polishing wheels and for grain size changeovers**

- Selection of excellent abrasives for sharpening and conditioning clogged polishing wheels
- For grain size changeovers from coarse to fine diamond powder

Product	Used for	Area of use
<b>Material</b>		
FLP RNB Coarse	Sharpening	Metal wheels
FLP RNB Fine	Sharpening	Diamond wheels
FLP RNS Coarse	Dressing	Metal wheels
FLP RNS Fine	Grain size changeover	Metal wheels
FLP RNK Coarse	Dressing	Diamond pellets
FLP RNK Fine	Grain size changeover	Diamond wheels
FLP RNP Coarse	Pellets for dressing	Bound grain wheels
FLP RNP Fine	Pellets for sharpening	Bound grain wheels

Cleaning / Rust Protection / Cooling

**Cooling Additives for Tool Cooling**



**For non-corrosive through-tool cooling**

- Concentrates to be mixed with water for economic use
- Lasting corrosion protection for metals even when acidic media are applied

Product	Viscosity	Basis		Concentrate	Usable for	
Material		Water	Oil	Mixing ratio	Special cast	Steel
FLP KMZ TM	1,1	x		1:5 - 1:10	x	x
FLP KMZ GL	1,5	x		1:20 - 1:30	x	x
FLP KMZ OL	3,0		x	0	x	x

**Package size:**  
400 ml, 500 ml, 1 l, 5 l

**Preservatives**



**Corrosion protection for finished work pieces**

- Rust preventives licensed by the automotive industry
- Lasting corrosion protection for metals even when acidic media are applied

Product	Effective period	Basis		Area of use			
Material		Oil	Water	Non-ferrous metal	Glass	Steel	Container
FLP RSM 9050	Short-term protection		x	x		x	Pump bottle
FLP RSM 200	Medium-term protection		x	x	x	x	Pump bottle
FLP RSM 600	Medium-term protection	x		x		x	Pump bottle
FLP RSM 73030	Long-term protection		x			x	Spray can

**Package size:**  
400 ml, 500 ml, 1 l, 5 l

# REPLACEMENT PARTS AND ACCESSORIES

## Lapping and Polishing Tools

### Lapping, Polishing and Base Wheels



\* Also available in inch sizes

\*\* Rotation direction and groove gradient depend on respective machine and process; when making requests please specify machine type, processing task and thickness of facing.

For all single-wheel and two-wheel machine types  
Working disc diameters 300 to 2900 mm\*

- Available with various well-tried groove patterns and surface structures
- Technological consulting service for tool layout

Product	Surface pattern				
	Un-grooved	Standard grooving Radially grooved	Spirally grooved Standard **	Spirally grooved Special grooving **	Waffle-grooved
Stainless steel	x				
Steel - soft	x		x	x	
Special cast - hard	x	x	x	x	x
Special cast - medium	x	x	x	x	x
Special cast - soft	x	x	x	x	x
Multimetal MMF	x			x	
Multimetal MMH	x		x	x	x
Multimetal MMM	x		x	x	x
Multimetal MMW	x		x	x	x
Bronze	x		x	x	x
Copper	x		x	x	
Tin	x		x	x	
Aluminium	x		x	x	

### Conditioning Rings



\* Also available in inch sizes

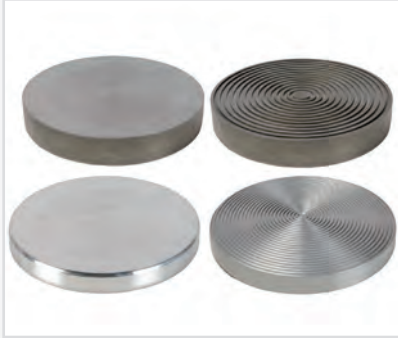
\*\* Rotation direction and groove width depend on respective process. When making requests please specify machine type, processing task and thickness of facing.

For all machine types and all working disc diameters  
from 300 to 2900 mm\*

- Available with various well-tried groove patterns and surface structures
- Technological consulting service for tool layout

Product	Design		
	Rustproof	Specification	Facing
Special cast - hard		Grooved, straight	-
Special cast - hard		Grooved, diagonal	-
Special cast - hard		Ungrooved	-
Special cast - medium	x	Ungrooved / grooved	PVC skids **
Special cast - medium	x	Ungrooved / grooved	HGW (cotton phenolic) skids **
Special cast - medium	x	Ungrooved / grooved	Ceramic segments
Special cast - medium	x	Ungrooved / grooved	Diamond pellets
Special cast - medium	x	Ungrooved / grooved	Glass pellets
Bound grain ring H		Ungrooved	-
Bound grain ring M		Ungrooved	-
Bound grain ring W		Ungrooved	-

## Load Plates for Workpieces



When making requests please specify machine type, machining task and thickness of facing.

**For all single-wheel machine types and working disc diameters from 300 to 2900 mm**

- Available with various well-tried groove patterns and surface structures
- Technological consulting service for tool layout

Product	Design	
Material	Specification	Grooving
Special cast	Ungrooved	None
Special cast	Grooved	Standard
Special cast	Waffled	25 x 25 mm
Aluminium alloy	Ungrooved	None
Aluminium alloy	Grooved	Standard
Ceramic	Ungrooved	None
Ceramic	Grooved	Standard

## Ceramic Pellets



**Spacers for templates and carriers**

- Spacers for conditioning rings, workpiece templates and carrier wheels
- Optimises the process and reduces aquaplaning

Product	Design	
Material	Measurement	Diameter x Height
Ceramic	mm	∅ 15 x 4,0
Ceramic	mm	∅ 16 x 2,0
Ceramic	mm	∅ 16 x 5,5
Ceramic	mm	∅ 30 x 1,1

## Templates



Available as blank disc or with recess. When making requests please specify machine type.

**For all single-wheel machines**

- Blank discs, or with recesses and spacers
- Recesses on request with optimised CAD design

Product	Specification	
Material	Measurement	Thickness
PVC	mm	1,0 / 2,0 / 3,0 / 4,0 / 5,0 / 8,0 / 10,0 / 20,0
Phenolic paper	mm	1,5 / 2,0 / 3,0 / 4,0 / 5,0 / 8,0 / 10,0 / 20,0
Glass fibre	mm	0,5 / 0,8 / 1,0 / 2,0 / 4,0
Spring steel / steel	mm	0,15 / 0,3 / 0,5 / 0,8 / 1,0 / 2,0
Special materials	mm	On request

## Foam and Felt Pads for Load Plates



For all single-wheel machines and working disc diameters from 300 to 2900 mm\*

- Provide protection for workpieces by levelling thickness differences
- Reduce misalignments to central axis

Product	Design	
	Measurement	Thickness
Felt soft	mm	3, 10, 30
Felt medium	mm	3, 10, 30
Felt hard	mm	3, 10, 30
Foam soft	mm	3, 10, 30
Foam hard	mm	3, 10, 30

\* Also available in inch sizes.  
When making requests please specify machine type. Available in all diameters.

## Bound Grain Wheels



For all single-wheel and two-wheel machines  
Working disc diameter from 300 to 2900 mm\*  
Corresponding conditioning rings

- Time-proven bonds and groove patterns
- Technological consulting service offers assistance when using new and modern facings

Product	Design		
	Ungrooved	Specification	Conditioning rings
Corundum bound grain wheel	x	F 120 - F 1200, white	x
Silicium carbide bound grain wheel	x	F 120 - F 1200, black / green	x
High-grade corundum bound grain wheel	x	F 120 - F 1200, red	x

\* Also available in inch sizes.  
Dressing tools in corresponding bonds and grain sizes can also be delivered.

## Diamond and CBN Wheels



For all single-wheel and two-wheel machines  
Working disc diameter from 400 to 1800 mm

- Time-proven bonds and groove patterns
- Technological consulting service offers assistance when using new bonds

Product	Design					
	Un-grooved	Segmen- ted	Hexa- gonal	Round	Ring- shaped	Special grooving
Diamond wheels, Grain specification D 15 to 116	x	x	x	x	x	x
CBN wheels, Grain specification B 25 to 126		x	x	x	x	x

When making requests please specify machine type, machining task, bond type and thickness of coating.

## Polishing Films and Polishing Pads



\* Also available in inch sizes  
When making requests please specify machine type. Available in all diameters.

For all single-wheel and two-wheel machines  
Working disc diameter from 300 to 2900 mm\*

- Self-adhesive and magnetic

Product	Design		
Material	Area of use	Used for	Grooving
FLP PPT QUS	All materials	Stock removal and polishing	None
FLP PPT STP	Nearly all materials	Stock removal and polishing	None
FLP PPT SAN	All materials	Final polishing	None
FLP PPT FOP	Nearly all materials	Stock removal and polishing	None
FLP PPT SWP	All materials	Final polishing	None
FLP PPT JAP	Steel	Stock removal and polishing	None
FLP PPT ALP	Diamond	Final polishing	None
FLP PPT MAM	All materials	Final polishing	None
FLP PPT GAE	Glass	Stock removal and flatness	Waffled, large
FLP PPT GFP	Glass	Final polishing	Waffled, medium

## Mounting Resins and Adhesive Resins



**Package size:** Sticks,  
250 g, 350 g, 500 ml, bars

**Bonding bridge for special applications**

- Ultra-pure fluids and specially ground granulates
- Different melting points and viscosities

Product	Specification				
	Material	Available as	Temperature °C	Oil	Emulsion
FLP KH 67/65	Stick / Powder	120-130	x		High removal rates
FLP KH 223/55	Powder	110-125	x		Strong adhesion
FLP KH 226/40	Stick	65-80	x	x	For thin pieces with extensive surfaces
FLP KH 002/60	Fluid	160-180	x		Quickly solving with detergents

## Optical Polishing Pitch



**Delivered in stick or plate shapes**

**For creating individual polishing tools**

- Pure resin qualities in well-proven mixtures
- Technological consulting based on decades of experience

Product	Specification		
	Material	Physical state	Melting Point
FLP OPP SL	Liquid	80°C	Bonding bridges
FLP OPP 60	Extra soft	50°C	Optical polishing
FLP OPP 65	Soft	70°C	Optical polishing
FLP OPP 70	Medium	80°C	Optical polishing
FLP OPP 75	Hard	85°C	Optical polishing
FLP OPP 80	Extra hard	90°C	Optical polishing

## Carrier Wheels



Available as blank discs or with recesses. When making requests please specify machine type.

### For all two-wheel machines

- Blank discs, or with recesses and spacers
- Recesses on request with optimised CAD design
- Recesses specially suited for individual workpiece geometry

Product	Specification	
Material	Measurement	Thickness
PVC	mm	1,0 / 2,0 / 3,0 / 4,0 / 5,0 / 8,0 / 10,0 / 20,0
Phenolic paper	mm	1,5 / 2,0 / 3,0 / 4,0 / 5,0 / 8,0 / 10,0 / 20,0
Glass fibre	mm	0,5 / 0,8 / 1,0 / 2,0 / 4,0
Spring steel / steel	mm	0,15 / 0,3 / 0,5 / 0,8 / 1,0 / 2,0
Special materials	mm	On request

## Dressing and Re-sharpening

## Tools and Templates for Dressing and Re-sharpening



\* Other machine types and measurements on request.  
When making requests please specify machine type, machining task and tool to be dressed.

### Dressing and Correcting

- Multiple grooved base elements and templates
- Technological consulting service for use of bonds

Product	Specification									
	Material	Diameter	ø	Thickness				Material		
5				30	60	80	White	Green	Red	
Template* for sharpening rings	mm	180	x							
	mm	225	x							
	mm	320	x							
	mm	400	x							
Dressing elements	mm	180		x			x	x	x	
	mm	225		x			x	x	x	
	mm	320		x			x	x	x	
	mm	400		x			x	x	x	
Re-sharpening rings	mm	180			x		x	x	x	
	mm	225			x		x	x	x	
	mm	320				x	x	x	x	
	mm	400				x	x	x	x	
Dressing stones	mm	40		x			x	x	x	
Sharpening stones	mm	40		x			x	x	x	

## Hand Lapping Wheels



### For manual lapping

- Available with various well-tried groove patterns and surface structures
- Technological consulting service for tool layout

Product	Design			Diameter	
	Ungrooved	Spirally grooved	Waffle-grooved	ø 300 mm	ø 400 mm
Special cast	x	x	x	ø 300 mm	ø 400 mm
Multimetal MMM	x	-	-	ø 300 mm	ø 400 mm
Copper	x	x	x	ø 300 mm	ø 400 mm
Tin	x	x	-	ø 300 mm	ø 400 mm
Aluminium	x	x	-	ø 300 mm	ø 400 mm

## Hand Lapping Kit



### The perfect starter kit

- For manual treatment of small pieces
- Different kits combinable for multi-stage processing

Product	Contains
FLP HLG Kit	1 Hand lapping plate special cast ø 200 mm, Diamond paste coarse
FLP HLM Kit	1 Hand lapping plate MM ø 200 mm, Diamond paste fine
FLP HLP Kit	1 Hand lapping plate soft ø 200 mm, Diamond paste extra fine
FLP LP-Case	1 Hand lapping plate for pre-, fine and final polishing ø 200 mm Diamond paste coarse, fine, extra fine, Fluid, Detergent

## Replacement Rollers



### For all single-wheel machines

#### Working disc diameters from 300 to 4000 mm\*

- Complete with all parts
- Protective covers made from V2A steel available in all roller sizes

Product	Contains		
	Designation	Material	Diameter
LR M 400	Roller FLP 300/400	Hard / shock-absorbing	ø 30 mm
LR M 600	Roller FLP 600/700	Hard / shock-absorbing	ø 40 mm
LR M 900	Roller FLP 900/1000	Hard / shock-absorbing	ø 44 mm
LR M 1200	Roller FLP 1200/1500	Hard / shock-absorbing	ø 50 mm
AR W 600	Drive roller FLP 600/700	Soft / anti-slip	ø 40 mm
AR W 900	Drive roller FLP 900/1000	Soft / anti-slip	ø 44 mm
AR W 1200	Drive roller FLP 1200/1500	Soft / anti-slip	ø 50 mm

\* Also available in inch sizes.

When making requests please specify machine type, year of manufacture and diameter of required roller. Please also confirm whether a non-corrosive product is needed.



## Accessories

### Dosing Unit for Lapping Agents



#### Much in demand for SIC, BOR and COR

- Low-wear pumps with long service life
- Simple control and maintenance

Product	Specification
FLP KD LMZ 3	3-channel dosing unit
FLP KD LMZ 3/1	Complete 3-channel system with distributor hose
FLP KD LMZ 4/1	4-channel dosing system with inlet hose and distributor hose
FLP SS Hose set	Replacement hoses and connectors
FLP ZF Inlet hoses	4 versatile jointed hoses with outlet nozzle and assembly block

### Spray Units for Diamond Liquids



#### Minimum quantity dosage for diamond suspensions

- Separate system pressures for medium and spray cone
- With built-in agitator for continual stirring of suspensions

Product	Specification
DMS I STG	Control unit with 2 containers (500 ml) and separate spraying pressures
DMS I EB	2 replacement containers (500 ml)
DMS II STG	Control unit with container (1000 ml) and adjustable spraying pressure
DMS II EB	1 replacement container (1000 ml)

### Tanks and Cascades



#### Much in demand for SIC, BOR and COR

- Low-wear pumps with long service life
- Simple control and maintenance

Product	Specification
FLP TP 5L	Tank with pump and distributor hose
FLP TP 15L/1	Tank with pump and distributor hose
FLP TPR 50L/1	Tank with pump, distributor hose and separate agitator
FLP TPR 120L/1	Tank with pump, distributor hose and separate agitator, V2A
FLP TPK 220L/1	Tank with pump, distributor hose and additional cascades
FLP TPR 800L/1	Combined supply unit for high performance machines

More containers and specifications – with or without temperature control – available.

## Cooling Unit



### Temperature control for stable processing

- Tool cooling with constant temperatures
- Adjustable temperature control for tools

Product	Features	
	Cooling power	Measurements (mm)
FLP KA 9	8,0 KW	715 x 715 x 1545
FLP KA 30	3,1 KW	720 x 720 x 755
FLP KA 75	7,5 KW	750 x 850 x 1697
FLP KA 92	9,2 KW	750 x 850 x 1697

## Cleaning Unit



### First-rate tool and machine cleaning

- Wet/dry vacuum unit for watery and oily media
- FLP RS 180 specifically for evacuating lapping and polishing slurry tanks

Product	Degree of protection	Accessories			Used for
		Hoses	Cart	Small parts	
FLP RS 20	Ex	1 m	-	x	Ex
FLP RS 27	IP 44	3 m	x	x	Water
FLP RS 180	IP 54	15 m	x	x	Oil / water

## Centrifuges



### Cleaning of processing fluids

- Treatment of media in full synchronisation with the machine
- For final cleaning of media or integrated into the fluid cycle
- Combined with cooling system, chip separator and fluid analysis unit

Product	Specification
FLP Z 3/60	Single-wheel machines for recycling polishing and lapping media
FLP Z 8/240	Two-wheel machines for lapping and fine grinding processes
FLP Z 16/800	High-duty units for multi-shift operation

# METROLOGY

## Flatness and Surface Inspection

### Monochromatic Lamps, Replacement Bulbs and Accessories



#### Monochromatic light for flatness inspection

- Simple measurement of workpiece flatness
- Optical measurement method without digital verification
- Suitable for in-between checks and tool inspections

Product	Product	Features
FLP IPG - 1	Monochromatic lamp IPG I	With stand
FLP EL - IPG1	Replacement light bulb IPGI	35 W
FLP IPG - 2	Monochromatic lamp IPG II	With granite stand
FLP EL - IPG2	Replacement light bulb IPG II	18 W
FLP IPG - 3	Monochromatic lamp IPG III	With base plate
FLP EL - IPG3	Replacement light bulb IPG III	35 W

### Optical Flats



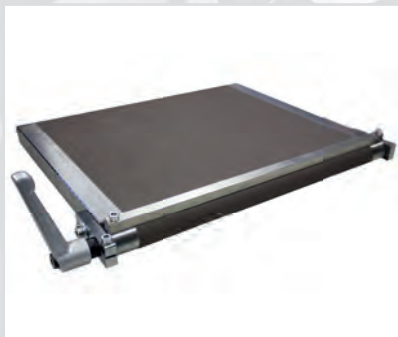
Reconditioning of optical flats on request.

#### Optical flats for flatness inspection

- For use on polished surfaces
- For one-sided or two-sided use

Product	Material	Diameter	Accuracy	Certificate	Features	
					One-sided	Two-sided
FLP PG 045		ø 45 mm	1/4 λ	x		x
FLP PG 075		ø 75 mm	1/10 oder 1/4 λ	x	x	x
FLP PG 100		ø 100 mm	1/10 oder 1/4 λ	x	x	x
FLP PG 125		ø 125 mm	1/10 oder 1/4 λ	x		x
FLP PG 200		ø 200 mm	1/4 λ	x	x	x

### Polishing and Finishing Table



#### Flat surface for finishing workpieces

- Ideal complement to monochromatic lamp
- For manual finishing of surfaces
- Suitable for polishing paper and diamond films

Product*	Size
FLP PT 1	250 x 300 mm
FLP PT 2	400 x 400 mm
FLP PT 3	240 x 430 mm

\* All equipped with quick clamp device.

## Polishing and Finishing Paper

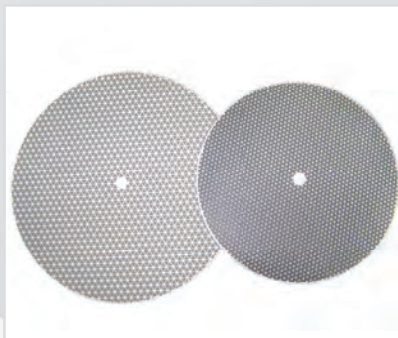


### Special paper backing coated with micrograin

- For generating polished, shiny and flat surfaces
- Combined with polishing table suitable for manual reworking of surfaces

Product	Micron	Quality	Size	
	Grain size		Norm	Width
FLP PP 2/0	2000	FEPA	305 mm	10 m
FLP PP 2/0	2000	FEPA	305 mm	50 m

## Diamond Abrasive Paper

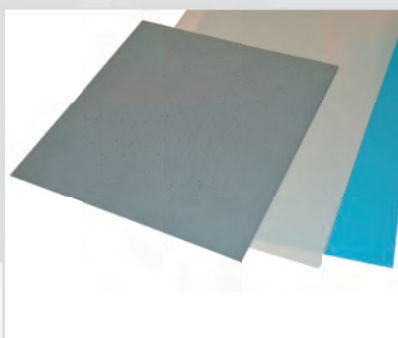


### For economical treatment of surfaces

- Coated with diamond grain at an even thickness
- For improving surface qualities and contact ratios

Product	Features	Micron		
Material	Bond	Grain size	Used for	Size
FLP DSB KF	Synthetic resin	3 µm	Hard metal, ceramic, glass	all Ø
FLP DSB KF	Synthetic resin	7 µm	Hard metal, ceramic, glass	alleØ
FLP DSB KM	Synthetic resin	15 µm	Hard metal, ceramic, glass	all Ø
FLP DSB MM	Metal	20 µm	Hard metal, ceramic, glass	all Ø
FLP DSB MG	Metal	46 µm	Hard metal, ceramic, glass	all Ø
FLP DSB MG	Metal	126 µm	Hard metal, ceramic, glass	all Ø

## Diamond Film

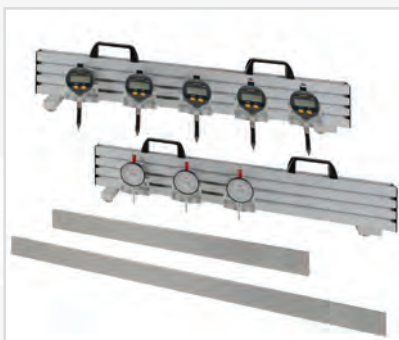


### For economical treatment of surfaces

- Coated with diamond grain at an even thickness
- For improving surface qualities and contact ratios

Product	Features	Micron	Used for	
Material	Self-adhesive	Grain size		Size
FLP DF F	x	3 µm	Jewellery, metal, glass	300 x 10 mm
FLP DF F	x	6 µm	Jewellery, metal, glass	300 x 10 mm
FLP DF M	x	9 µm	Jewellery, metal, glass	300 x 10 mm
FLP DF M	x	15 µm	Jewellery, metal, glass	300 x 10 mm
FLP DF M	x	30 µm	Jewellery, metal, glass	300 x 10 mm
FLP DF G	x	60 µm	Jewellery, metal, glass	300 x 10 mm

## Straight Edges for Measuring and Inspecting



Complete package in wooden case

Available lengths 300 to 2900 mm

Sizes corresponding to working disc diameters

- Inspection and measuring edges of different accuracy classes
- With or without gauges depending on machine size

Product	Features			
	Accuracy class	Material	Specification	Accessories
FLP MLSG	Smoothed	Steel	Inspection edge	-
FLP MLS00	Class 00	Steel	Measuring edge	-
FLP MLBA	0,001 mm	Aluminium	Base	3 analog gauges
FLP MLBD	0,001 mm	Aluminium	Base	5 digital gauges
FLP MLCD	0,001 mm	Carbon fibre	Base	4 digital gauges

## Master Setting Block



Available lengths 350 to 2900 mm

Sizes corresponding to working disc diameters

- Ideal complement to straight edges
- For calibrating measuring edges
- Reduces measurement errors considerably

Product	Accuracy class	Features
Granite block GN 1	Class 1	Block and edge
Granite block GN 00	Class 00	Block smoothed, edge polished
Granite block GNS 00	Class 00	Block and edge polished

## Measuring Gauges



Measuring devices with calibration certificate

- Analog gauges for optical inspection
- Digital gauges for optimised measuring

Product	Features		
	DIN	Error limit (mm)	Accuracy
FLP AU 001 Analog gauge		0,017 mm	0,001 mm
FLP AU 001 Digital gauge	878	0,034 mm	0,001 mm
FLP DU 002 Analog gauge	863-1	0,003 mm	0,001 mm
FLP DU 002 Digital gauge	863	0,001 mm	0,001 mm

## Roughness Tester



### Device for measuring surface roughness

- Easy handling
- Standard versions Ra, Rq, Rz, Rt, Ry, tp
- In carrier case with accessories

Product	Accuracy class	Features
FLP OMR HG	0,005-16 µm	Handset with interface
FLP OMR SF	-	Base with magnet
FLP OMR GF	-	Granite base

## Measuring and Inspection Device for Flatness Measuring

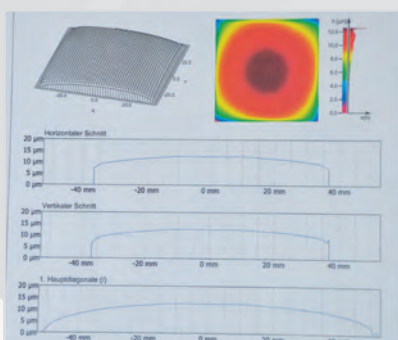


### Modern digital tool control

- Time-proven manual handling
- No daily calibration necessary
- Depending on configuration level also digitally readable
- In highest configuration level tool data directly in PC/intranet

Product	Accuracy class	Specification
FLP HMB/1	0,0001 mm	Handset with interface
FLP HMB/2	0,0001 mm	Handset with interface and master
FLP HMB SET	0,0001 mm	Handset with interface, master, software and PC

## Surface Measurement Technology for High-end Surfaces



### For ångström level (Å) measuring at your own facilities

- Unique measurement technology
- Combination of different measuring procedures
- Flatnesses and surface qualities at AFM level

Product	Accuracy class	Specification
FLP HEA	1 Å	Complete device with software

# FOLLOW-UP PROCESSES

Cleaning / Rust Protection / Cooling

## Ultrasonic Cleaning Tanks and Rinse Tanks



\* Optional

### Powerful cleaning of lapped and polished workpieces

- Time-proven devices for permanent use
- Excellent cleaning results when used with cleaning products from this catalogue

Product	Specification					
	Dimensions	Liquid volume	Ultrasound	Heating	Lid*	Wash basket*
FLP US 275	240 x 137 x 100	1,9 l	37 kHz	x	*	*
FLP US 950	300 x 240 x 150	7,5 l	37 kHz	x	*	*
FLP US 2800	505 x 300 x 200	20,6 l	37 kHz	x	*	*
FLP US 9000	600 x 500 x 300	75 l	37 kHz	x	*	*

## Cleaning Chemicals for Ultrasonic Cleaning



Package size: 1 l, 10 l, 20 l

### Powerful cleaning of lapped and polished workpieces

- Reliable chemicals and well-tryed formulas
- Excellent cleaning results when used with cleaning products from this catalogue

Product	Basis		Used for					
	Alcalic	Acidic	Steel	Non-ferrous metal	Sintered metal	Hard metal	Ceramic	Glass
FLP ALK 140	x		x		x	x		
FLP VER 089	x		x		x	x	x	
FLP KER 328		x					x	x
FLP ALK 131	x		x			x	x	x
FLP KAR 60	x		x		x	x		

## Ultrasonic Cleaning Systems, Rinse Tanks and Dryers



### Powerful cleaning of lapped and polished workpieces

- Time-proven devices for permanent use
- Excellent cleaning results when used with cleaning products from this catalogue

Product	Specification						
	Dimensions	Liquid volume	Ultrasound	Heating	Skimmer	Lid	Wash basket
FLP RA 300	296 x 332 x 264	32 l	25/45 kHz	x	-	*	*
FLP RA 550	296 x 501 x 309	55 l	25/45 kHz	x	-	*	*
FLP RA 1200	520 x 450 x 445	140 l	25/45 kHz	x	*	*	*
FLP RA 1600	720 x 400 x 515	190 l	25/45 kHz	x	*	*	*

Also available: Hot air circulation dryer, oil separator 100 l / 200 l, filtration pump unit

## Handling and Packaging

## Anti-Corrosion Packaging



## Proven certified materials

- Transport packaging for specific requirements
- Proven and widely used package materials
- Especially made for lapped and polished surfaces

Product	Features			
Material	Surface structure	Thickness	Width of roll (mm)	Type
<b>Paper sheets</b>				
FLP KSP R7	Smooth	75 µm	1.000	-
FLP KSP PR7	PE-coated	95 µm	1.000	-
FLP KSP KR11	Creped	135 µm	1.000	-
<b>Flat bags</b>				
FLP KSP FB 001	Blue-transparent-smooth	80 µm	150 x 200	M3.08
FLP KSP FB 002	Blue-transparent-smooth	80 µm	200 x 300	M3.08
FLP KSP FB 003	Blue-transparent-smooth	80 µm	300 x 400	M3.08
<b>VCI anti-corrosion film</b>				
FLP KSP KF 004	Transparent	100 µm	1.500 x 500	M3.10
FLP KSP KF 005	Transparent	150 µm	1.500 x 500	M3.15
<b>Zipper bags</b>				
FLP KSP SF 311	Blue-transparent	80 µm	100 x 150	M3.08
FLP KSP SF 312	Blue-transparent	80 µm	150 x 200	M3.08



## Skin Protection and Skin Care



### For protection, prophylaxis and care

- Wide selection of products for all types of mechanical production
- Special protection for oil or water based processes
- Cleaning and care products for personal hygiene

Product	Material	Designation	Basis		Used for	
			Oil	Water	Skin care	Area of use
FLP - SBB		Skin protection cream	x	x		Broad use
FLP - SPH		Skin protection		x		Long-term protection
FLP - TBH		Skin protection	x			Long-term protection
FLP - SPHU		Skin cleansing	x	x		For heavily stained hands
FLP - SLH		Skin care			x	After Cleansing
FLP - Spender		Dispenser	x	x	x	Refill for all types

## Auxiliary material

Product	Material	Designation	Features	Size	Used for
FLP VR		Fleece coil	Lint-free	29 x 37 cm	Cleaning of workpieces
FLP NPT1		Adhesive film	Strong adhesion	300 mm x 50 m	Mounting of workpieces
FLP NPT2		Adhesive film	Weak adhesion	320 mm x 50 m	Mounting of workpieces
FLP EHV		Gloves	Vinyl	Standard	Protection from lapping + polishing oils
FLP MH1		Gloves	With anti-slip surface	Size 8	Protection from injuries
FLP MH2		Gloves	With anti-slip surface	Size 9	Protection from injuries
FLP MH3		Gloves	With anti-slip surface	Size 10	Protection from injuries
FLP AH1		Gloves	Made from lint-free cotton	Size 8	Handling sensitive pieces
FLP AH2		Gloves	Made from lint-free cotton	Size 9	Handling sensitive pieces
FLP AH3		Gloves	Made from lint-free cotton	Size 10	Handling sensitive pieces

# TAININGS AND CONTRACTS

## Seminars

Lapping and polishing are generally quite unknown but in fact widely used machining processes. As operator and developer of lapping and polishing technology we have been offering trainings in this area for many years. Depending on the level of existing knowledge, customers may choose between three different seminar categories.

### Basic Seminar – Crash Course Lapping and Polishing

#### **Basic Knowledge for Lapping and Polishing.**

Theoretical processes and technological fundamentals are explained extensively and illustrated with practical examples. Microgap motion sequences are used to expound on the effect of tool choice, tool configurations and respective mistakes on the machining results. Ways of preventive error correction for one-sided machining processes and for all machine types available on the market are introduced, making the seminar highly relevant to machine operators. As a two-day event, the seminar is divided into a theoretical and a practical part and is held at our own subcontracting centre.

**Two-day basic seminar; includes training material and manuals for recurring operations**

### Advanced Seminar – Fine Grinding, Flat Honing

#### **Building on the participants' existing expertise in lapping, all Fine Grinding and flat honing technologies with SIC and corundum bound grain tools as well as with super-abrasive diamond and CBN wheels are explained.**

The seminar starts with an in-depth introduction into the mentioned technologies to enable users to better control these processes and directly influence cutting performance and wear of expensive tools. Using practical examples, valuable knowledge on the machine types used by the participants including machining equipment and technical possibilities as well as on the usage of different measuring devices is provided. As a two-day event, the seminar is divided into a theoretical and a practical part and is held at our own subcontracting centre.

**Two-day advanced seminar; includes training material and individual work sheets**

### Technology Seminar – Optimising Working Processes

#### **Based on the content of the basic and advanced seminars, this training specifically targets the technology used by customer companies. Single bookings allow for a thorough discussion of the machines, processes and consumables in use.**

Main goal of the seminar is reaching process and cost optimisation with regard to the specific technology used by the customer. Invariably this goes along with an enhancement of customer competence. The seminar lasts several days and provides up-to-date knowledge reflecting the advancement of this modern technology, as well as process information and hands-on experience. Backed by 20 years of experience we lend you valuable and practical support at the FLP research and development facilities in Zörbig or on-site at your premises. Seminar costs often pay off within a very short time because of the considerable increase in processing efficiency.

**Three-day technology course; includes training material, data for process optimisation**

## Service and Maintenance Contracts

### Service Contracts

#### **For all machines available on the market**

Our team of experienced service technicians, specialists and mechatronic engineers with practical expertise covering old and new control systems including CNC systems is always on hand to offer quick and comprehensive assistance. Depending on the specific task and the extent of technical malfunctions on-call services are performed within 24 or 48 hours or as requested.

Services may include technological changeovers or modifications of machines as well as the delivery or supply of new tools, tool components or assembly units.

### Maintenance Contracts

#### **For all machines available on the market**

Constant machine availability of expensive facilities and bottleneck machines becomes more and more important and calls for regular scheduled preventive maintenance. Thus, increasingly maintenance contracts serve as tools to maintain high and reliable machine performance. Based on pre-defined maintenance and servicing plans a regular inspection or technological check-up is performed. Depending on a machine's area of use, its priority, or on a customer's specific quality standards a complete replacement of machine parts or assembly units can also be carried out.



**HIGH END Precision Processing  
Our Innovation – Your Progress**

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