



**PRECISION  
POLISHING**



**MICROABRASIVES  
FOR INDUSTRY**



**biffignandi**  
GROUP

WE IMPROVE THE WORLD OF SURFACE FINISHING

**biffignandi** s.p.a.



VETRO CARE





**Biffignandi** Spa was founded in **1923**, and has been a leader in the production, conversion and distribution of coated **abrasives** for **almost a century**.

The company is headquartered in Italy, and through a program of planned domestic and **international** expansion, Biffignandi now comprises a group of companies and divisions – each being innovators in their respective markets.

All entities in the Biffignandi Group are principally engaged in **surface treatment**, through the development of technologies, equipment and systems.

The philosophy of the Biffignandi Group is to deliver **optimal solutions** to our customers. We put the concept of sustainability, respect for our environment, investing in research and striving for innovation at the heart of what we do.



## PRECISION POLISHING – FOCUS ON THE PERFECT FINISH

Industrial users are increasingly demanding products of a higher quality and reduced lead times from suppliers who can offer flexible solutions.

With a focus on meeting these demands, the **Precision Polishing** division sets the standard in the microfinishing and lapping sector.

- ▢ A **comprehensive range** of consistently high performance microabrasive film.
- ▢ **R&D and production** of innovative microfinishing flexible abrasives.
- ▢ **ECC (Environment Controlled Conversion)** to provide an optimal quality through the prevention of contaminates in the production of rolls, sheets, discs and belts.
- ▢ **Technical support and training** available at either the customer premises or at our in-house demonstration center.
- ▢ **Flexibility and efficient customer service** which has characterized Biffignandi for almost 100 years.



## TARGET APPLICATIONS

### Cylindrical components:

- Cylinders for industrial applications
- Cylinders for rotogravure
- Cylinders with surface coatings

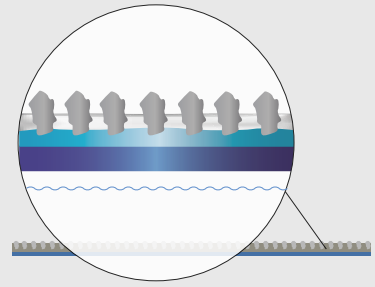
### Automotive sector:



- Crankshaft
- Camshaft
- Steering, engine and various components
- Valves

### Other:

- Metallography and flat lapping applications
- Jewellery and watches
- Precision mechanics components
- Optical and electronical components





-  ABRASIVE GRAIN
-  TOP COAT
-  BASE COAT
-  BACKING FILM
-  ANTISLIP BACK COATING

# DIAMOND MICROFINISHING FILM

Diamond microabrasives electrostatically coated on high precision 125 µm | 5 mil and 190 µm | 7,5 mil PET film with anti-slip back coating.

Due to the sharp diamond structure and the strong resin bond, FD55 gives a fast and aggressive cutting power, high product strength and durability.

It optimises the finishing process of hard materials as thermal spray coated surfaces, casted materials, glass and others, thanks to time saving and a reduction in abrasive consumption.

It can be used either dry or wet with emulsion, oil or other.

Diamond Microfinishing Film is colour coded and back printed to easily identify the abrasive grit required.

SERIES	FILM THICKNESS	GRIT RANGE µm	GRIT RANGE									
			15	20	30	45	50	60	80	125		
FD55	125 µm   5 mil + ASB*	Diamond	✓		✓	✓			✓	✓		
	190 µm   7,5 mil + ASB*										✓	

\*anti-slip back coating

## FD55 Workpiece materials

- CARBIDES
- CERAMIC
- HARD CHROME
- HARD RUBBER
- CAST IRON
- NICKEL
- GEM STONES
- GLASS

## FD55 Conversion forms

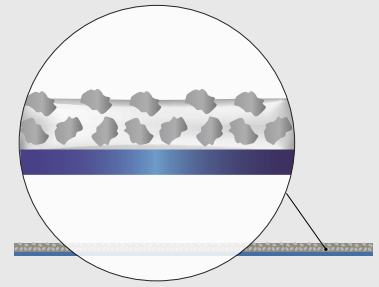
**ROLLS:** width 5mm - 500mm x length 5mt - 50mt

**DISCS:** diameter 50mm - 500mm with or without PSA (Pressure Sensitive Adhesive) backing

**SHEETS:** up to 500mm x 500mm with or without PSA (Pressure Sensitive Adhesive) backing

**BELTS:** width 10mm - 500mm x length 320mm - 10.000mm with joint tape on back side or scuffed abrasive side

**OTHER FORMS AND DIMENSIONS ARE AVAILABLE ON REQUEST**



-  ABRASIVE GRAIN
-  TOP COAT
-  BACKING FILM

# DIAMOND POLISHING FILM

Diamond microabrasive slurry coated on high precision 75 µm | 3 mil film, achieving a high-precision finish with excellent flexibility and durability.

It can be used either dry or wet with emulsion, oil or other.

The main applications are lapping and polishing processes of hard materials such as carbides, ceramics, metals, glass, fiber optic connectors and other finishing and lapping process.

Diamond Polishing Film is colour coded to easily identify the abrasive grit required. To maintain uniform flatness of the film, there is no printing on the underside because the increase in thickness from the layer of ink would strongly influence the consistency of the finish.

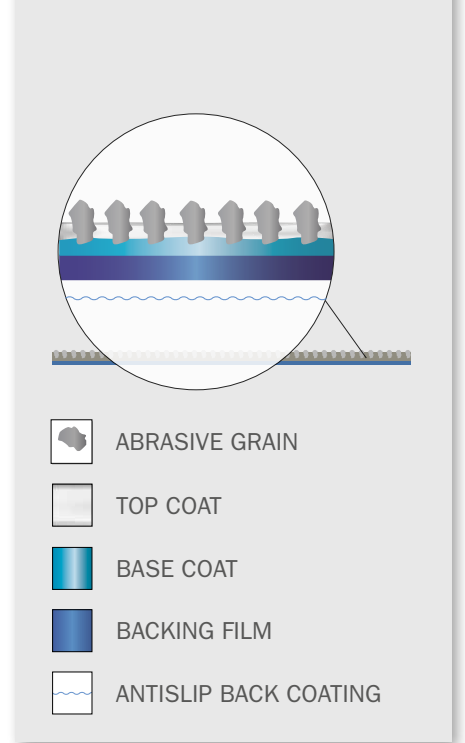
SERIES	FILM THICKNESS	GRIT RANGE µm	0,5	1	2	3	5	9	12	15	20	30	40	45	60	80
FD30	75 µm   3 mil	Diamond	✓	✓		✓	✓	✓		✓		✓		✓	✓	✓

## FD30 Workpiece materials

CARBIDES  
 CERAMIC  
 HARD RUBBER  
 CAST IRON  
 HARD CHROME  
 NICKEL  
 GEM STONES  
 GLASS

## FD30 Conversion forms

**ROLLS:** width 5mm - 500mm x length 5mt - 100mt  
**DISCS:** diameter 50mm - 500mm with or without PSA (Pressure Sensitive Adhesive) backing  
**SHEETS:** up to 500mm x 500mm with or without PSA (Pressure Sensitive Adhesive) backing  
**BELTS:** width 10mm - 500mm x length 320mm - 10.000mm with joint tape on back side  
**OTHER FORMS AND DIMENSIONS ARE AVAILABLE ON REQUEST**



# MICROFINISHING FILM

Microabrasives electrostatically coated on high precision 75 micron or 125 micron film, provide a solution for even the harshest and most aggressive applications, whilst achieving excellent surface finish and consistent results.

It can be used either dry or wet with emulsion, oil or other.

The range of minerals includes aluminum oxide and silicon carbide. FA50, FA55 and FS50 have “anti-slip back coating” as antislip of the film during processing.

The main applications are the finishing and microfinishing of metals, plastics, rubber and other composite materials.

FA35 is advised for superfinishing machines where rolls with reduced outside diameters are required.

SERIES	FILM THICKNESS	GRIT RANGE µm	5	9	12	15	20	30	40	50	60	80	100
FA50	125 µm   5 mil + ASB*	Aluminium Oxide	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FA55	125 µm   5 mil + ASB*	Aluminium Oxide		✓		✓	✓	✓	✓				
FS50	125 µm   5 mil + ASB*	Silicon Carbide		✓		✓	✓	✓	✓		✓		
FA35	75 µm   3 mil	Aluminium Oxide		✓		✓	✓	✓	✓		✓		

\*anti-slip back coating

## FA50 - FA55- FA35 Workpiece materials

HARD CHROME RUBBER  
CAST IRON COPPER STEEL  
TEFLON ALUMINIUM

## FS50 Workpiece materials

RUBBER NICKEL GLASS STEEL  
TEFLON ALUMINIUM PLASTIC

## FA50 - FA55 - FA35 - FS50 Conversion

ROLLS: width 5mm - 500mm x length 5mt - 300mt

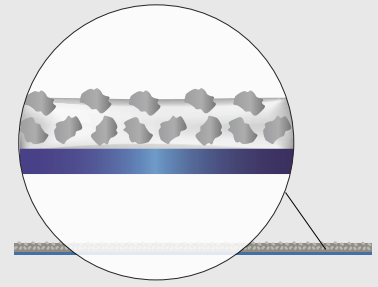
SCALLOPED ROLLS: available on request




DISCS: diameter 50mm - 500mm with or without PSA (Pressure Sensitive Adhesive) backing

SHEETS: up to 500mm x 500mm with or without PSA (Pressure Sensitive Adhesive) backing

BELTS: width 10mm - 500mm x length 320mm - 10.000mm with joint tape on back side or scuffed abrasive side

OTHER FORMS AND DIMENSIONS ARE AVAILABLE ON REQUEST



-  ABRASIVE GRAIN
-  BONDING
-  BACKING FILM

# POLISHING FILM

Microabrasive slurry coated on high precision 75 micron film, gives an excellent finish with flexibility and durability. It can be used either dry or wet with emulsion, oil or other.

The range of mineral includes aluminum oxide and silicon carbide.

The main applications for polishing film are polishing and lapping processes of metal, plastic and rubber materials, fiber optic connectors and other substrates.

Polishing Film is colour coded to easily identify the abrasive grit required. To guarantee a uniform flatness of the film, there is no printing on the backside because the increase in thickness from the layer of ink would strongly influence the finishing consistency.

Specifically, for final polishing of the fibre optic connector's are available Silica Oxide polishing films.

They ensure a perfect finish and geometry of the ferula, combining it with a high life of the products.

SERIES	FILM THICKNESS	GRIT RANGE µm	GRIT RANGE													
			0,5	1	2	3	5	9	12	16	20	30	40	60		
FA30	75 µm   3 mil	Aluminium Oxide	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FS30	75 µm   3 mil	Silicon Carbide		✓		✓	✓	✓			✓	✓	✓	✓		

## FA30 Workpiece materials

HARD CHROME      STEEL  
 RUBBER             ALUMINIUM  
 CAST IRON  
 COPPER

## FS30 Workpiece materials

RUBBER             ALUMINIUM  
 NICKEL             PLASTIC  
 STEEL  
 TEFLON

## FA30 - FS30 Conversion forms

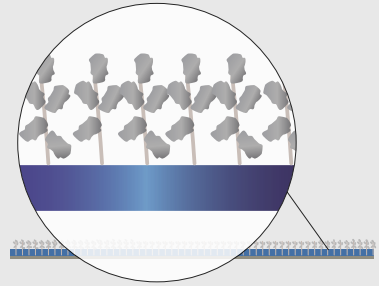
**ROLLS:** width 5mm - 500mm x length 5mt - 400mt



**DISCS:** diameter 50mm - 500mm with or without PSA (Pressure Sensitive Adhesive) backing

**SHEETS:** up to 500mm x 500mm with or without PSA (Pressure Sensitive Adhesive) backing

**BELTS:** width 10mm - 500mm x length 320mm - 10.000mm with joint tape on back side

**OTHER FORMS AND DIMENSIONS ARE AVAILABLE ON REQUEST**



-  ABRASIVE GRAIN
-  FLOCKED PILE
-  BACKING FILM

# POLISHING FLOCKED FILM

Polishing Flocked Film is a polishing microabrasives with micron-graded grains coated on a soft flocked 75 µm | 3 mil polyester film.

The superfine mineral is aluminum oxide and it allows Polishing Flocked Film to get a perfect finishing with higher gloss and shine. Silicon carbide and cerium oxide minerals are available on request. The main applications for Polishing Flocked Film are the final cylinders polishing and mirroring, especially in hard chrome plated mirror finished cylinders market for plastic film manufacturing. Other applications are in metallographic market and other finishing and lapping processes.

SERIES	FILM THICKNESS	GRIT RANGE µm	GRIT RANGE	
			2	5
FA92	75 µm   3 mil + ASB*	Aluminium Oxide	✓	✓

\*anti-slip back coating

## FA92 Workpiece materials

HARD CHROME  
COPPER  
STEEL  
CAST IRON

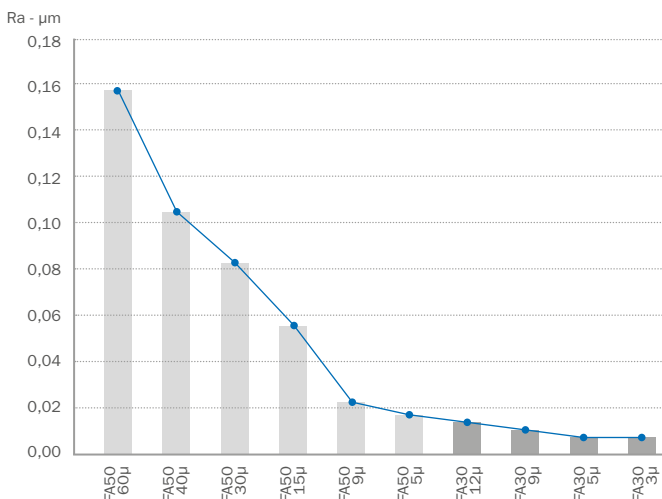
## FA92 Conversion forms

**ROLLS:** width 5mm - 490mm x length 5mt - 50mt  
**DISCS:** diameter 50mm - 490mm with or without PSA (Pressure Sensitive Adhesive) backing  
**SHEETS:** up to 490mm x 490mm with or without PSA (Pressure Sensitive Adhesive) backing  
**BELTS:** width 10mm - 490mm x length 320mm - 10.000mm with joint tape on back side  
**OTHER FORMS AND DIMENSIONS ARE AVAILABLE ON REQUEST**

# SUPERFINISHING TEST RESULTS

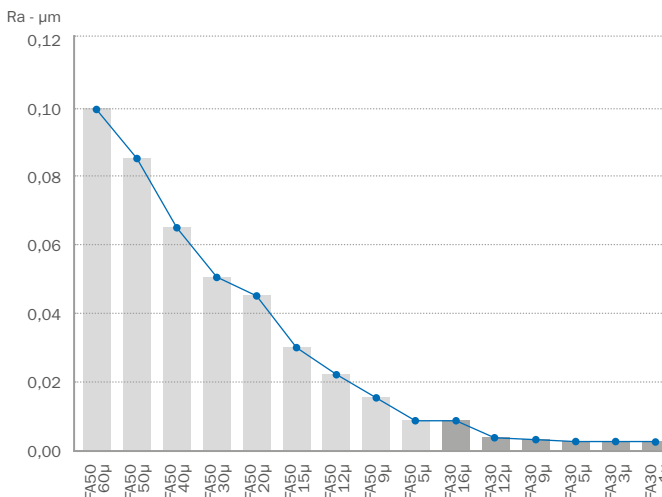
## HARD CHROME - PLATED

DIMENSIONS	Ø 40 mm X 300 mm length
FILM SPEED	7 cm/min
ROLL ROTATION	260 rpm
TRAVERSE SPEED	20 cm/min
TRANSITIONS	4+4
CONTACT WHEEL	Rubber, 85 ShA (FA50) - 60 ShA (FA30)
OSCILLATION	30 Hz
PRESSURE	4 bar (FA50) - 3 bar (FA30)



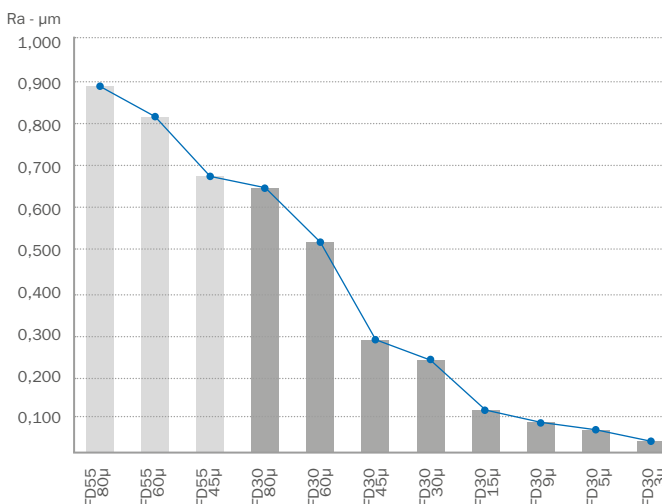
## COPPER PLATED

DIMENSIONS	Ø 40 mm X 250 mm length
FILM SPEED	10 cm/min
ROLL ROTATION	550 rpm
TRAVERSE SPEED	40 cm/min
TRANSITIONS	2+2
CONTACT WHEEL	Rubber, 60 ShA
OSCILLATION	30 Hz
PRESSURE	3 bar



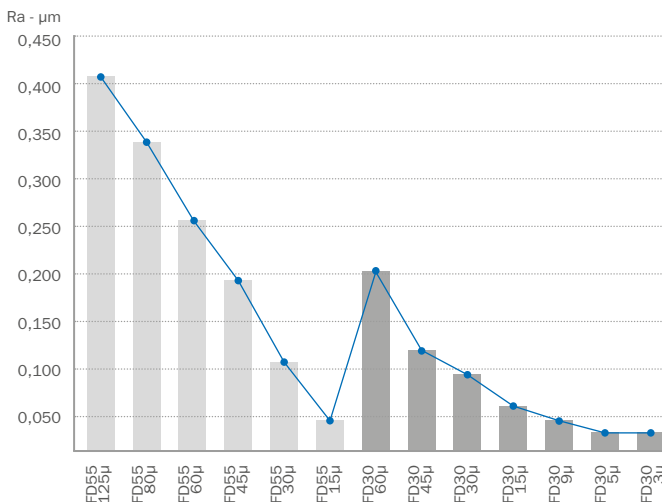
## CHROMIUM OXIDE COATING

DIMENSIONS	Ø 95 mm X 1000 mm length
FILM SPEED	5 cm/min
ROLL ROTATION	150 rpm
TRAVERSE SPEED	5 cm/min
TRANSITIONS	2+2
CONTACT WHEEL	Rubber, 85 ShA
OSCILLATION	30 Hz
PRESSURE	2 bar



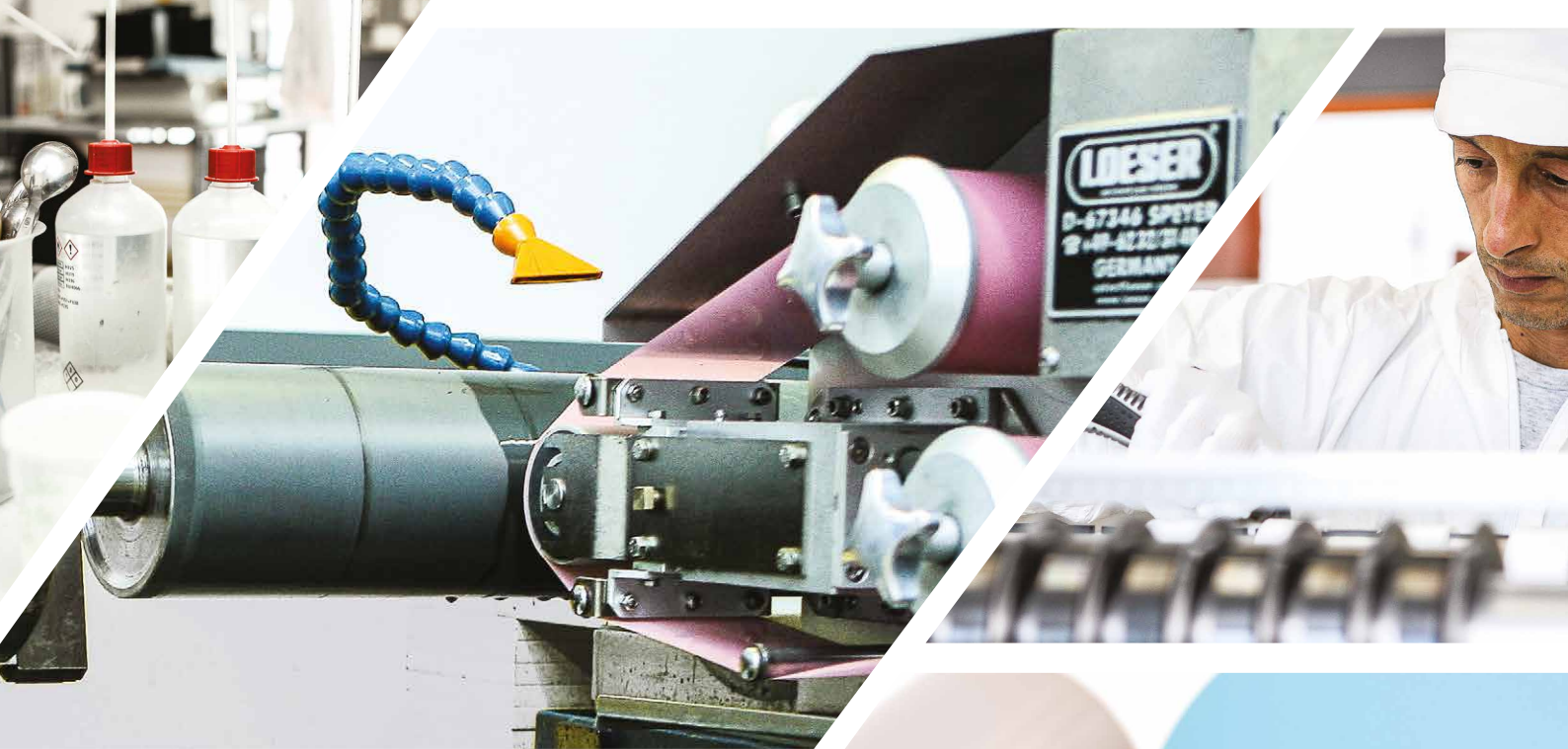
## TUNGSTEN CARBIDE COATING

DIMENSIONS	Ø 130 mm X 500 mm length
FILM SPEED	5 cm/min
ROLL ROTATION	250 rpm
TRAVERSE SPEED	15 cm/min
TRANSITIONS	2+2
CONTACT WHEEL	Rubber, 85 ShA
OSCILLATION	30 Hz
PRESSURE	4 bar



# APPLICATION GUIDE

	POLISHING FILM			MICROFINISHING FILM			POLISHING FLOCKED FILM	
	ALUMINIUM OXIDE	SILICON CARBIDE	DIAMOND	DIAMOND	ALUMINIUM OXIDE	SILICON CARBIDE	ALUMINIUM OXIDE	ALUMINIUM OXIDE
	FA30	FS30	FD30	FD55	FA50 - FA55	FS50	FA35	FA92
<b>WORKPIECE MATERIALS</b>	COPPER	/				/	/	/
	HARD CHROME	/		/	/		/	/
	STEEL	/	/			/	/	/
	CERAMIC			/	/			
	RUBBER	/	/	/	/	/	/	
	CAST IRON	/		/	/	/		/
	CARBIDE			/	/			
	PLASTIC		/				/	
	TEFLON		/			/	/	/
	NICKEL		/	/			/	
	GEM STONES			/	/			
	ALUMINIUM	/	/			/	/	/
GLASS			/	/		/		
	FA30	FS30	FD30	FD55	FA50 - FA55	FS50	FA35	FA92
<b>ENGINEERING INDUSTRIES</b>	HYDRAULIC COMPONENTS	/			/	/	/	
	BEARINGS	/			/	/	/	
	METALLOGRAPHY	/	/	/	/	/	/	/
	PNEUMATIC COMPONENTS	/	/	/	/			/
	WATCH & JEWELLERY	/	/	/	/		/	
	CYLINDERS MAINTENANCE	/	/	/	/	/	/	/
	CYLINDERS MANUFACTURING	/	/	/	/	/	/	/
	ROTOGRAVURE CYLINDERS	/				/	/	
<b>AUTOMOTIVE INDUSTRIES</b>	CRANKSHAFTS				/			
	STEERING RACKS	/			/		/	
	ENGINE COMPONENTS	/	/	/	/	/	/	
	VALVES	/			/		/	
	CAMSHAFTS				/			
	SHOCK ABSORBER				/		/	
	GEAR COMPONENTS	/			/		/	
	PRECISION PARTS	/	/	/	/	/	/	
<b>ELECTRONIC MARKETS</b>	FIBRE OPTIC CONNECTORS	/	/	/				/
	HARD DISCS	/	/	/				
	MICROMOTOR	/		/				
	MAGNETIC HEADS	/		/				
	OPTICAL CONNECTORS	/	/	/				
	CD RESTORING	/	/					
	FA30	FS30	FD30	FD55	FA50 - FA55	FS50	FA35	FA92
<b>TARGET FINISHING</b>	FINISHING			/	/	/	/	
	MICROFINISHING			/	/	/	/	
	POLISHING	/	/	/				/
	MIRRORING							/



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