INSIGNUM 4000 Laser

ASYS GROUP

INSIGNUM Laser Marking Systems



Group INSIGNUM

worldwide more than 6000 installed
Systems & ERP/MES- Connections

LASER 20 YEARS KNOW-HOW



Scanning System(s)

Label System(s)

Laser Marking System(s)

INSIGNUM 4000 Laser – Specification

Dimensions

- Length: 830 mm
- Width: 1565 mm
- Height: 1550 mm
- PCB width: 508 mm
- PCB length: 508 mm
- Component clearance: ±40 mm (+25/-40 mm for the fibre laser)
- Marking area 500 x 500 ± mm
- Precision +/- 150µm@5S
- Cycle time 0,7 sec (Marking and scanning)

Other Key Data

- Electrical connection: 230V/50Hz - 115V/60Hz
- Pneumatic connection: 6 bar; 12 Nl/min
- Transport height: 920 mm ± 50 mm



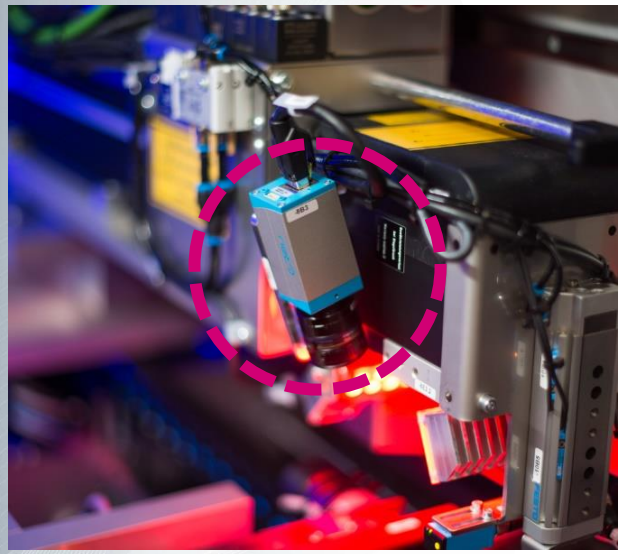




- Formato PCB di grandi dimensioni
- Soluzioni economicamente vantaggiose
- Ideale per un'isola di marcatura
- Poco spazio occupato
- Quasi esente da manutenzione

- Large PCB-format
- Cost-efficient solutions
- Ideal for an marking island
- Smallest Footprint
- Almost maintenance free

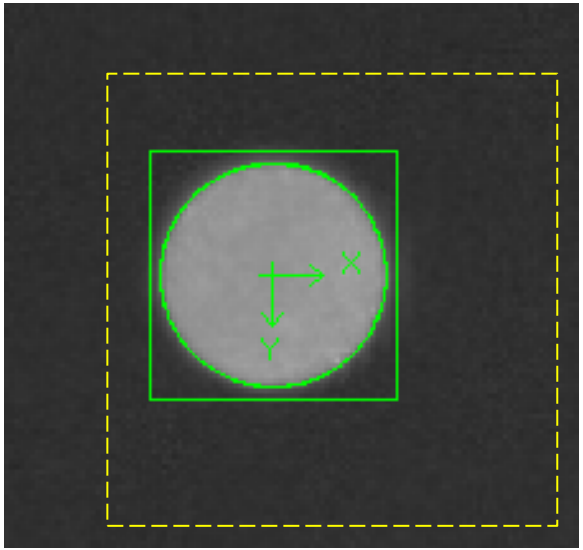
High-resolution 10MPx Camera



Camera



Direct lighting



Funzionalità e vantaggi

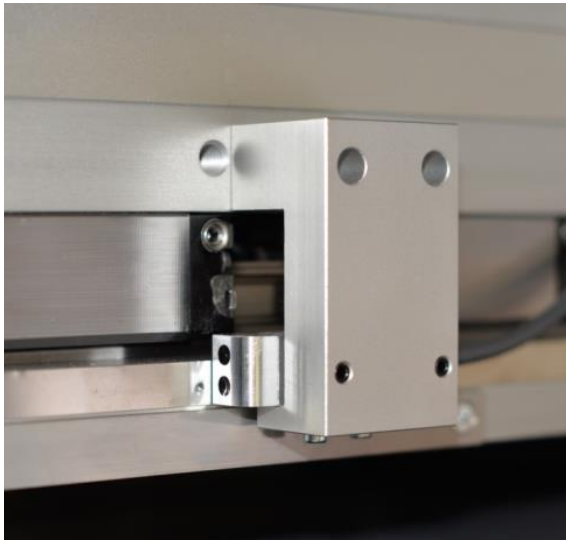
- Rilevamento di fiducial fino ad una dimensione di 0,2 mm
- Illuminazione diretta e indiretta per un chiaro rilevamento fiduciale
- Risoluzione immagine <15 µm/Px

Functionality and advantages

- Detection of fiducials up to a size of 0.2 mm
- Direct and indirect lighting for clear fiducial detection
- Image resolution <15 µm/Px

Linear Axis Drive







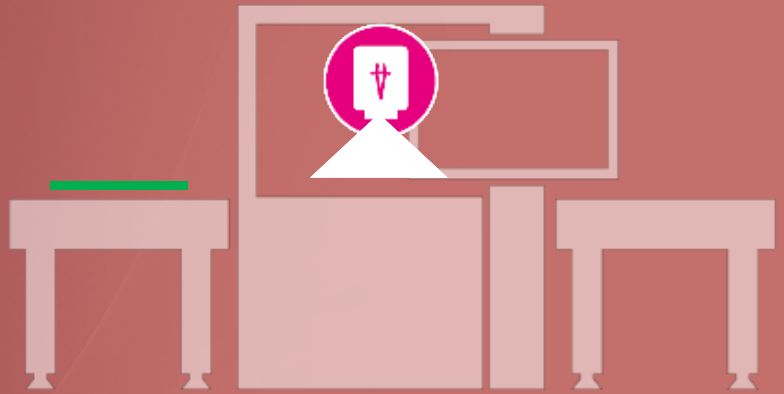
Funzionalità e vantaggi

- Azionamento ad assi lineari per compiti di posizionamento di alta precisione
- Banda magnetica ad alta risoluzione con una risoluzione di 1 µm
- Telaio in acciaio resistente alla torsione per stabilizzare le applicazioni di forza dell'asse lineare

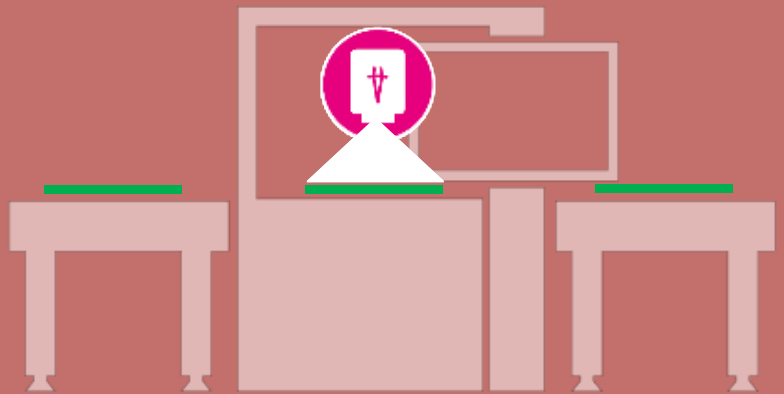
Functionality and advantages

Linear axis drive for high-precision positioning tasks
High-resolution magnetic strip with a resolution of 1 µm
Torsion-resistant steel frame to stabilize applications of force of the linear axis

Synchronized Transport



Without synchronized transport



With synchronized transport

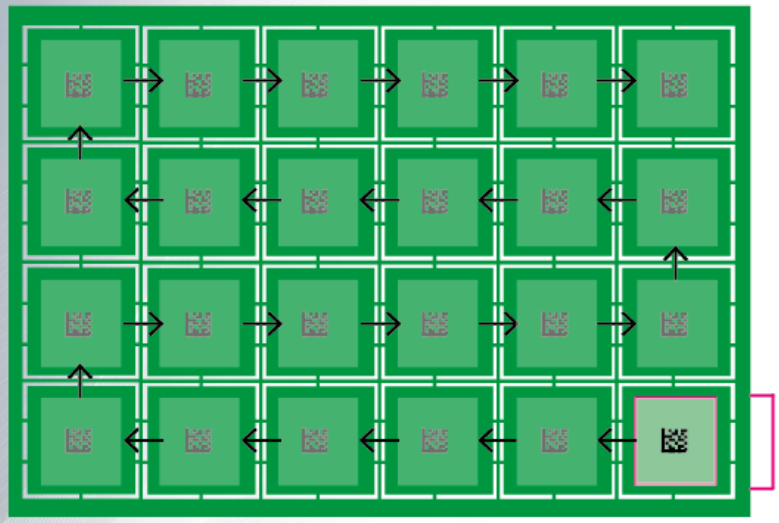
Funzionalità e vantaggi

- Tempi di trasporto ridotti grazie all'estensione e all'estrazione parallele
- Tempo di gestione completo ridotto a 4 secondi
- Il trasporto sincronizzato può essere attivato o disattivato a seconda del prodotto

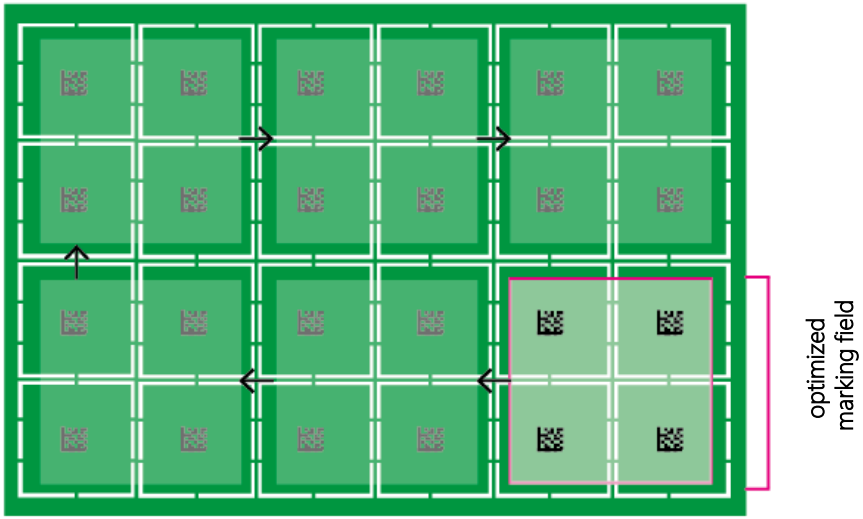
Functionality and advantages

- Shortened transport time by parallel extending and extracting
- Complete handling time reduced to 4 seconds
- Synchronized transport can optionally be activated or deactivated depending on the product

OPTIMAP



Without OPTIMAP



OPTIMAP

Funzionalità e vantaggi

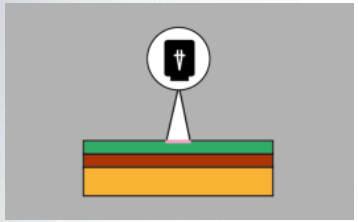
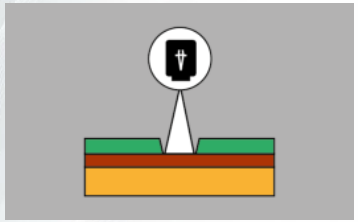
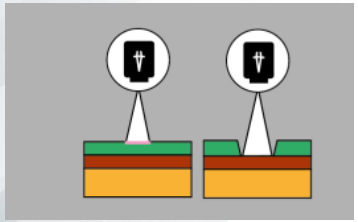
- Il campo di marcatura fino a 80x80 mm viene utilizzato in modo ottimale e i movimenti sono ridotti
- Diverse posizioni di marcatura vengono contrassegnate e verificate in un'unica fase del processo
- Il tempo ciclo si riduce di ca. 0,5 secondi per posizione

Functionality and advantages

- Up to 80x80 mm marking field is used optimally and movements are reduced
- Several marking positions are marked and verified in a single process step
- Cycle time is reduced by approx. 0.5 sec per position

La giusta sorgente laser per ogni applicazione

The Right Laser Source for Every Application

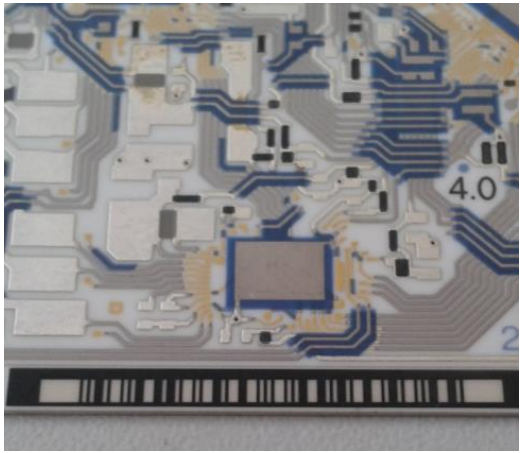
1		CO_2 laser Marking of solder resists	CO2 Laser ASYS Group	10,600 nm 10 W
2		Fiber laser Removal of solder resist	Fiber Laser ASYS Group	1,064 nm 12 W – 50 W
3		Green laser Marking or removal of solder resist	Green Laser Copper	532 nm 5 W – 10 W

Laser CO^2: funzionalità di marcatura laser

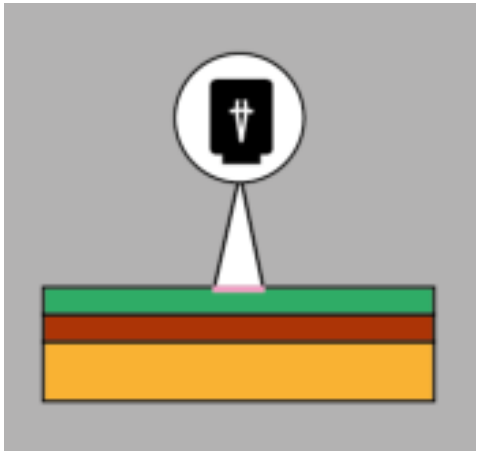
CO2 Laser: Laser Marking Functionality



CO_2 laser



Example: Ceramic plate with black coating



Dati

- Lunghezza d'onda 1.0600 nm / 10 Watt. (Altri poteri su richiesta)
- Vita minima - tempo almeno 45.000 h
- Produttore laser: Synrad

Data and Facts

- Wave length 1,0600 nm / 10 Watt. (Other powers upon request)
- Minimum life - time at least 45,000 h
- Laser manufacturer: Synrad

Laser CO^2 (standard per ogni macchina INSIGNUM)

CO^2 Laser (Standard for every INSIGNUM machine)

L'utilizzo di un laser CO2 per marcare i PCB provoca un cambiamento di colore nel resist di saldatura.
La "profondità di combustione" è di ca. 10 µm.
Il tubo laser è una struttura a scatola rigida che fornisce una piattaforma ultrastabile per il risonatore laser. I tubi della serie 48 di Synrad sono montati in un dissipatore di calore estruso a forma di EI che funge anche da telaio per l'elettronica di azionamento. Ciò garantisce che il laser resisterà ai severi requisiti degli ambienti industriali.Il design del tubo sigillato interamente in metallo e il processo di produzione proprietario garantiscono un'elevata purezza del gas, essenziale per una lunga durata operativa. I laser della serie 48 sottoposti a test di durata presso Synrad hanno funzionato ininterrottamente per 45.000 ore e anche di più, prima di riscontrare qualsiasi degrado di potenza.

Using a CO2 laser to mark PCBs causes a colour change in the solder resist.

The „Burn-in depth" is approx. 10 µm .

The only sealed C02 lasers with an installed base dating over 20 years, Synrad's original 48-series is the industry's gold standard for long operating lifetimes and high reliability.

The laser tube is a rigid box structure design that provides an ultra-stable platform for the laser resonator. Synrad's 48-series tubes are mounted into an EI-shaped heat sink extrusion that also serves as the chassis for the drive electronics. This guarantees that the laser will withstand the harsh requirements of industrial environments. The all-metal sealed tube design and proprietary manufacturing process ensure high gas purity, essential for long operating lifetimes. 48-series lasers on lifetest at Synrad have run continuously for 45,000 hours and even longer - before experiencing any degradation in power.



Laser FIBER: funzionalità di marcatura laser

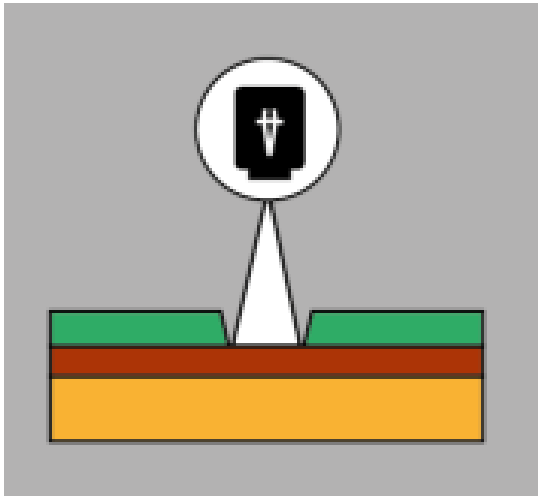
FIBER Laser: Laser Marking Functionality



Fiber laser



Example: marking on steel



Dati

- Lunghezza d'onda 1,064 nm / 20 Watt. (Altri poteri su richiesta)
- Vita minima - tempo almeno 40.000 h
- Produttore laser: SPI

Data and Facts

- Wave length 1,064 nm / 20 Watt. (Other powers upon request)
- Minimum life - time at least 40.000 h
- Laser manufacturer: SPI

Laser Fiber (Option per ogni macchina INSIGNUM)

Fiber Laser (Option for every INSIGNUM machine)

L'utilizzo di un laser a fibra per marcare i PCB rimuove il resist di saldatura.

Specifiche tecniche

Laser a fibra:	SPI 12 Watt / 20 Watt / 30 Watt (laser aggiuntivi/altri su richiesta)
Area di marcatura:	100 mm × 100 mm
altre zone:	su richiesta
Durata:	> 50.000 ore

Using a fibre-laser to mark PCBs removes the solder resist.

Technical specifications

Fibre laser:	SPI 12 Watt / 20 Watt / 30 Watt additional / other lasers on request
Marking area:	100 mm × 100 mm
other areas:	on request
Lifetime:	> 50.000 h

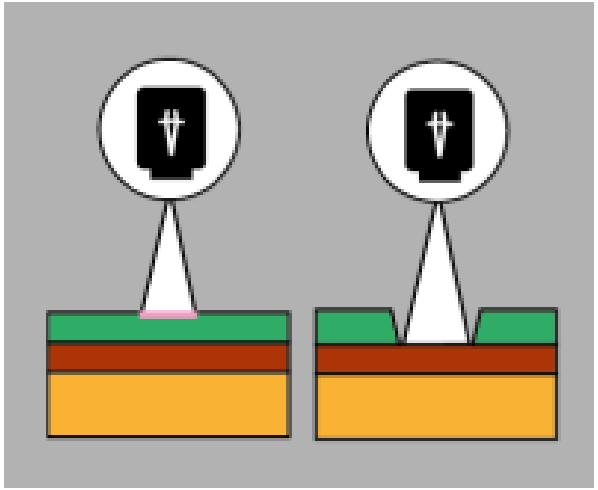


Laser GREEN: funzionalità di marcatura laser

GREEN Laser: Laser Marking Functionality







Green laser

Example: marking in and on glass

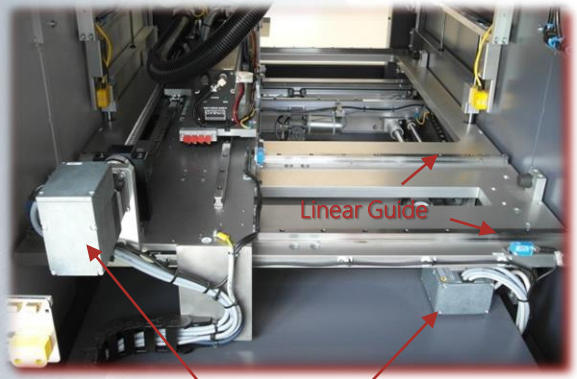
Dati

- Lunghezza d'onda 532 nm / 5 Watt. (Altri poteri su richiesta)
- SENZA MANUTENZIONE
- Produttore laser: INNOLAS

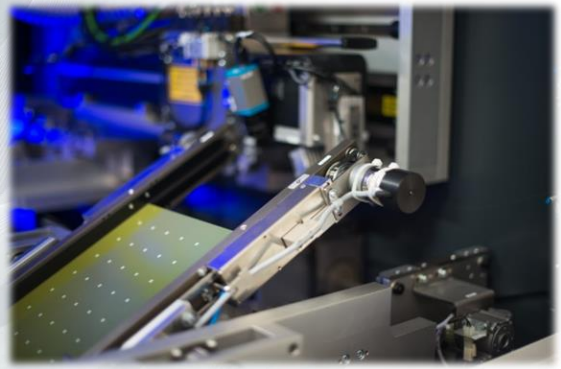
Data and Facts

- Wave length 532 nm / 5 Watt. (Other powers upon request)
- NO MAINTENANCE NEEDED
- Laser manufacturer: INNOLAS

View of the INSIGNUM Laser



Servo Motor and controller X and Y Axis



Integrated FlipStation

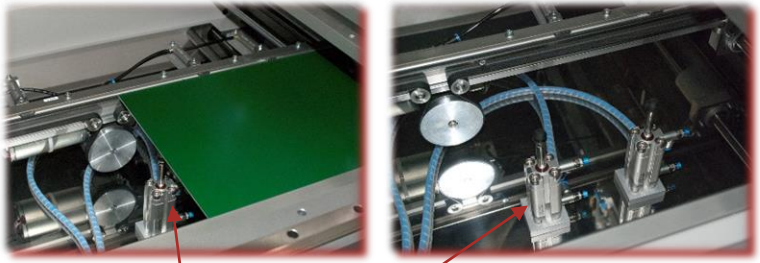
Side-clamping

Cilindro pneumatico per bloccaggio laterale

Pneumatic cylinder for side-clamping.



PCB-Support



Cilindro pneumatico con piedini magnetici

Pneumatic cylinder with magnetic feet

BDS-I / BST-I / BFS-I controllati dal INSIGNUM Laser

BDS-I / BST-I / BFS-I controlled from INSIGNUM Laser



BDS-I



BFS-I

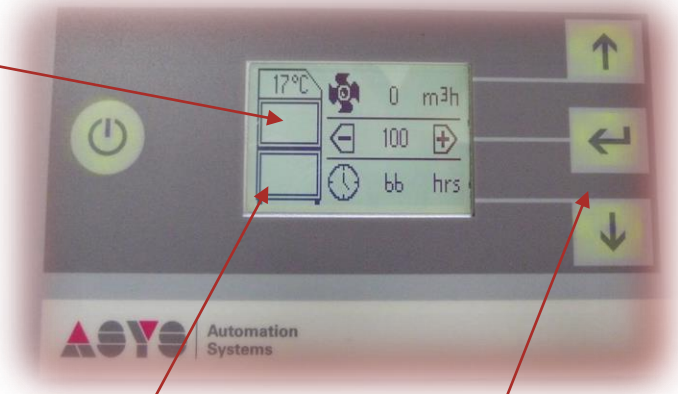


BST-I

Vacuum Unit (Option per ogni macchina INSIGNUM)

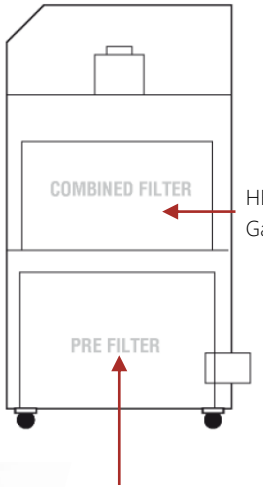
Vacuum Unit (Option for every INSIGNUM machine)

Livello di riempimento del filtro
Filling level of the carbon-filter



Unità Aspirante - Specifiche tecniche

- Lunghezza: 430 mm
- Larghezza: 430 mm
- Altezza: 980 mm
- Peso: 75 kg
- Capacità: 380 m³
- Produzione: 1.1 KW
- Fusibile: 16 A
- Livello di rumore 60 dB



HEPA filter; efficiency H13: 99.997%@0.3µ
Gas filter; activted carbon Has to be replaced yearly

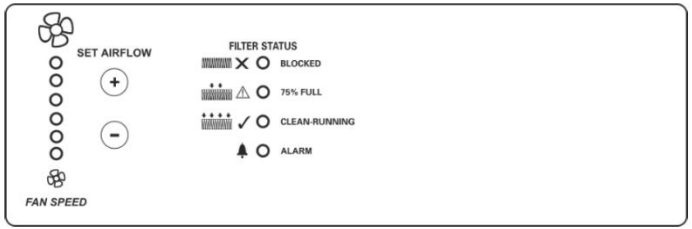
Surface 12.0m²; efficiency F8: 85%@0.8µ
Change depends on production demand:

Vacuum Unit - Technical specificatior

- Length: 430 mm
- Width: 430 mm
- Height: 980 mm
- Weight: 75 kg
- Capacity: 380 m³
- Output: 1.1 KW
- Fuse: 16 A
- Noise level: 60 dB

Livello di riempimento del filtro
Filling level of the carbon-filter

Portata regolabile
Adjustable througput



Marcature permanenti con i laser di marcatura ASYS

Lettere, codici di ogni genere, loghi, marchi CE, targhette identificative, numeri di lotto…

Materiali

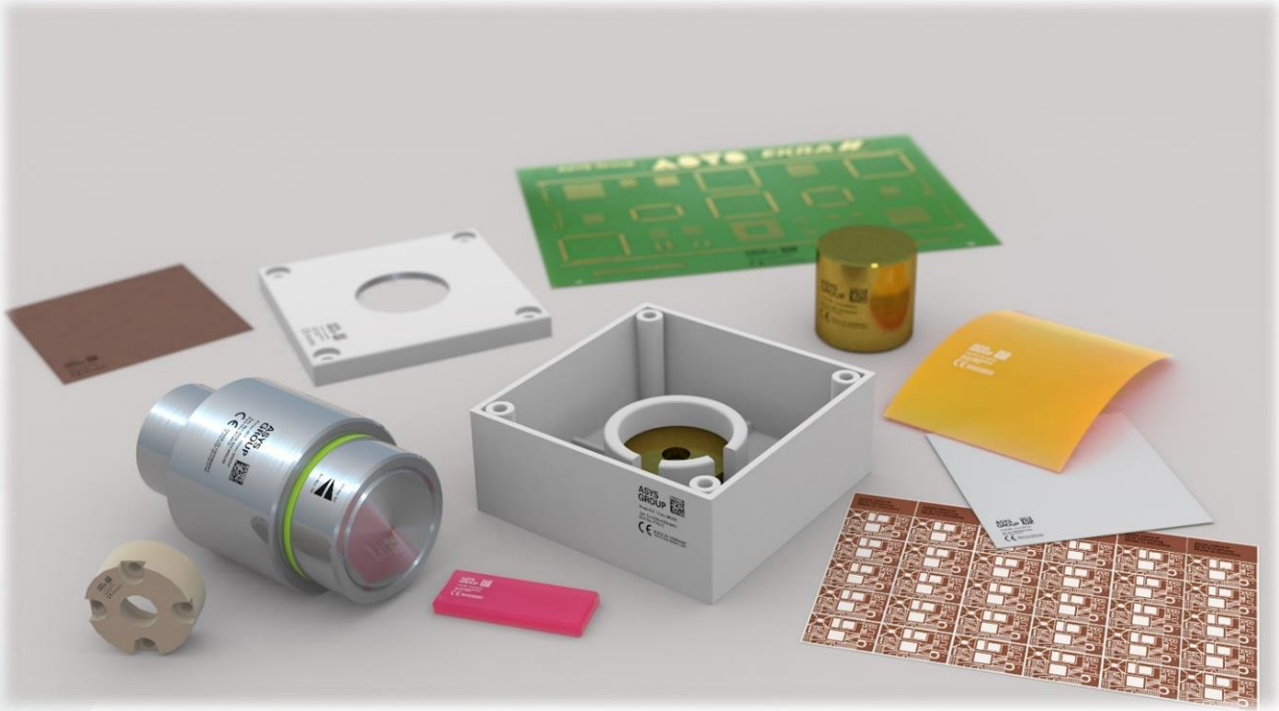
Materie plastiche per alloggiamenti pompe…circuiti DBC, indicatori di direzione e fari, componenti elettronici e altro ancora…

Metalli per la marcatura di smartphone, componenti dimmer, fusioni (automotive)

Ceramica…

Permanent Markings with ASYS Marking Lasers

Lettering, codes of all kinds, logos, CE signs, type plates, batch numbers …



Materials

Plastics for pump housings…DBC circuits, turn signals and headlights, electronic components and more…

Metals for smartphone marking, dimmer components, castings (automotive)

Ceramics…

Laser Application Services

Ottimizzazione del processo ed etichettatura dei campioni

Vuoi sapere se il tuo materiale è adatto alla marcatura laser?

Oppure stai cercando le migliori impostazioni del laser?

Inviaci il tuo materiale per un test applicativo gratuito.

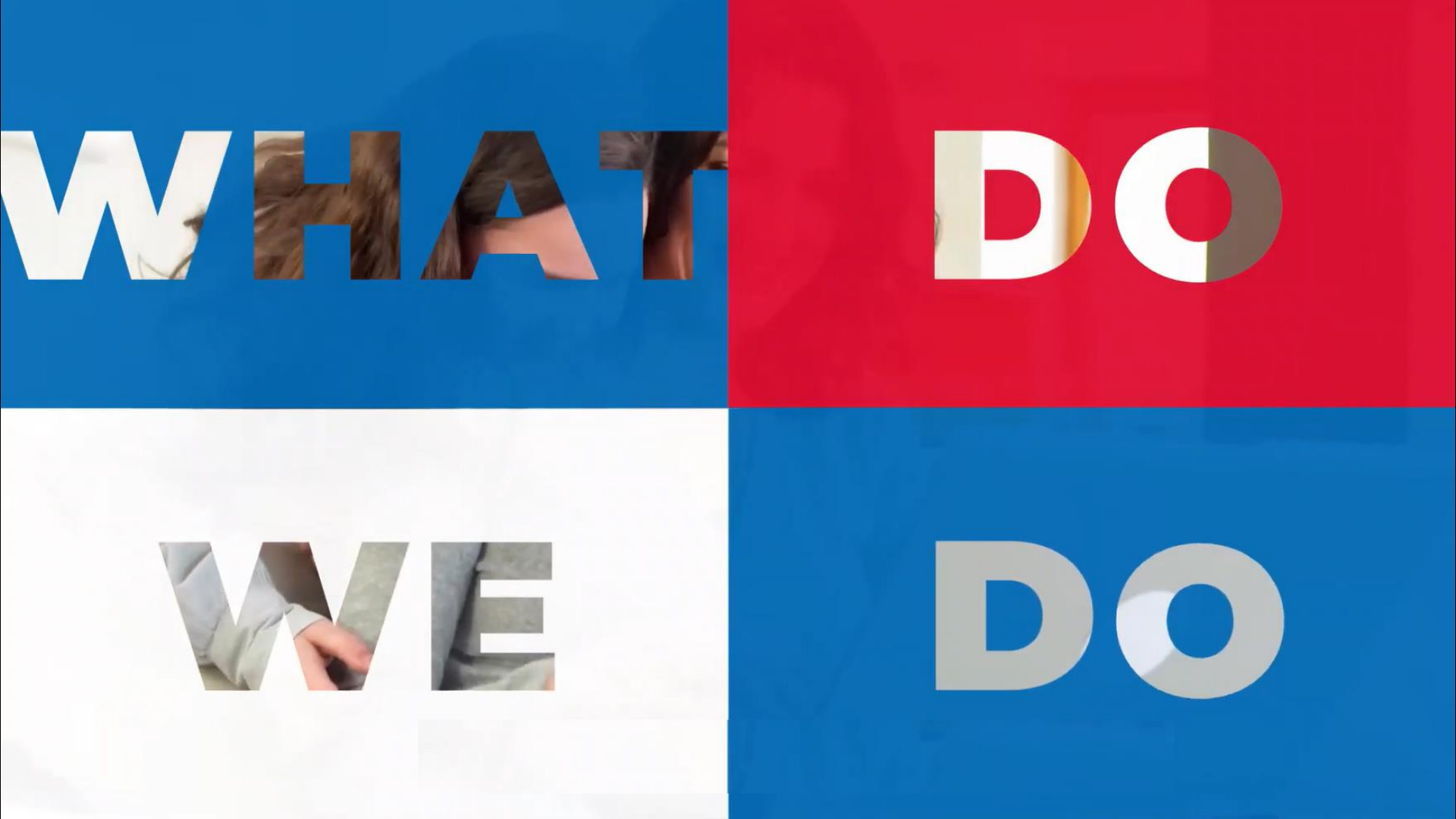


Process Optimization and Sample Labeling

You want to know if your material is suitable for laser marking?

Or are you looking for the best laser settings?

Send us your material for a free application test.


WHAT
DO
WE
DO