



# Digital Manufacturing Trends

## Q3/2018

# Introduction

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The Digital Manufacturing Trends Q3/2018 marks the halfway point of 2018 and with it comes new insights. Spring is always a busy time for manufacturing and prototyping. Engineers begin new projects after the end of the financial year and students are preparing their final year projects. We dive into the latest trends with our Q3 report.

3D Hubs Digital Manufacturing Trends is a quarterly update using data from 6,000 active international suppliers, who create more than 250,000 parts each quarter. It's the only industry report based on hard numbers and the most extensive overview of the latest trends in Digital Manufacturing.

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# Industrial

## Highest Rated Industrial Printers

### Insights

The Formiga P100 continues its reign at the top with a perfect 5.00 rating in at #1. SLS is the dominant industry technology once again. The main challenger, Multi Jet Fusion by HP, comes in at #2 with a rating of 4.95, used by their Jet Fusion 3D 4200 machine. 3D Systems and EOS machines make up 70% of the list, notably 3D systems sPro series is featured 3 times in the Top 10.

Rounding out the podium in #3 is Stratasys Objet30 Prime with a 4.94, a PolyJet machine capable of producing parts with multiple materials. The overall technology spread has stayed the same since Q2.

#	Printer Model	Technology	Printer Quality Rating
1	Formiga P 100	SLS	5.00
2	HP Jet Fusion 3D 4200	MJF	4.95
3	Objet30 Prime	PolyJet	4.94
4	EOSINT P 760	SLS	4.93
5	sPro 140	SLS	4.93
6	iSLA-650 Pro	SLA	4.92
7	sPro 230	SLS	4.84
8	Formiga P 110	SLS	4.82
9	sPro 60	SLS	4.78
10	lpro 9000	SLA	4.69

These are the top 10 rated industrial printers out of 200 printer models listed on 3D Hubs, based on print quality ratings from customer review data. Only printers with more than 30 reviews in the quarter are included in these statistics.

# Industrial

## Most Used Industrial Printers

### Insights

The Most Used Industrial Printers continues to grow as the HP Jet Fusion 3D 4200 has seen record output for 2018. At #1 the HP machine created 6,551 prints, nearly triple that of #2 place Formiga P 110 which achieved a respectable 2,244. In a surprise move, the UnionTech Lite 600 moves from #10 to #3 with 1,665 prints made. The large format SLA machine is capable of creating molds and tooling for automotive manufacturers.

For the first time, an industrial FDM machine has entered the Most Used Industrial Printers, with the Dimension 1200es at #6 with 460 parts. The machine prints with Stratasys' proprietary ABSplus™ material, an engineering-grade thermoplastic. In recent years there has been a decline in interest of industrial FDM machines as their desktop counterparts continued to improve however, this data would suggest there is still a place for them in the market.

#	Printer Model	Technology	Print
1	HP Jet Fusion 3D 4200	MJF	6,551
2	Formiga P 110	SLS	2,244
3	UnionTech Lite 600	SLA/DLP	1,665
4	sPro 230	SLS	622
5	Objet30 Prime	Material Jetting	569
6	Dimension 1200es	FDM	460
7	Formiga P 100	SLS	447
8	Objet350 Connex	Material Jetting	347
9	Elite P3600	SLS	304
10	iSLA-650 Pro	SLA/DLP	303

These are the top 10 most used industrial printers out of 200 printer models listed on 3D Hubs. The data is based on customer prints from the previous quarter.

# Desktop

## Highest Rated Desktop Printers

### Insights

The Highest Rated Desktop Printer for Q3 is the veteran of the list, the Zortrax M200. The M200 received 317 reviews and hit a 4.87, just beating the always popular MK2 and Taz 5 who both finished joint #2 with a 4.86.

The Creality CR-10, a popular budget machine that has a huge community jumped from #10 to #4, with a print quality rating also moving from a 4.75 to 4.84. Prusa Research continues to dominate the Top 10, with the MK2, MK2S and MK3 all making top grades. The machines also took a large share of the reviews showing their popularity with service providers across the world.

#	Printer Model	Technology	Reviews	Print Quality Rating
1	Zortrax M200	FDM	317	4.87
2	Lulzbot Taz 5	FDM	161	4.86
3	Original Prusa i3 MK2	FDM	658	4.86
4	Creality CR-10	FDM	200	4.84
5	Original Prusa i3 MK3	FDM	349	4.83
6	Original Prusa i3 MK2S	FDM	503	4.82
7	FlashForge Creator Pro	FDM	405	4.79
8	Ultimaker 2	FDM	184	4.77
9	Form 2	SLA	701	4.77
10	Ultimaker 2+	FDM	307	4.75

These are the top 10 rated printers out of 700 printer models listed on our platform, based on print quality ratings from customer review data. Only printers with more than 140 reviews in the quarter are included in these statistics.

# Desktop

## Most Used Desktop Printers

### Insights

The Most Used Desktop Printers continues to be a fight between the Form 2 and MK2 as they trade places again. The Form 2 is unique in that it is the only SLA machine in the Top 10. With new resins being released in Q2 for the Formlabs machines we may see this gap grow. The new resins released include Ceramic resin and Wax resin, for the engineering and jewelry industry respectively.

Both Ultimaker and Prusa Research have three machines in the Top 10. Of the total 71,869 prints produced in the top 10, the Prusa machines have manufactured over 25,000 of the, an impressive figure.

#	Printer Model	Technology	Prints
1	Form 2	SLA	14,516
2	Original Prusa i3 MK2	FDM	12,309
3	FlashForge Creator Pro	FDM	10,399
4	Original Prusa i3 MK2S	FDM	6,486
5	Original Prusa i3 MK3	FDM	6,345
6	Zortrax M200	FDM	5,771
7	Ultimaker 2	FDM	4,801
8	Ultimaker 2+	FDM	4,505
9	Fusion3 F400-S	FDM	3,574
10	Ultimaker 2+ Extended	FDM	3,163

These are the top 10 most used desktop printers out of 700 printer models listed on 3D Hubs. The data is based on customer prints from the previous quarter.

# Tech & Materials

## Most Used Technologies

### Insights

The Most Popular Technology is FDM with a 1% increase since the previous report. SLA+DLP stayed the same in #2 with 15% whilst SLS dropped 1% to 12% at #3.

For the first time since the report began Metal Sintering double its share going to 2%, this could be potentially due to businesses putting in their high-end orders before the end of the financial year. It could also be down the fact that Metal 3D printing is seeing further adoption by large multinationals as its ability to create complex geometries in metal cannot be beaten by traditional technologies.



The data displayed shows the breakdown in revenue as a percentage for each technology.

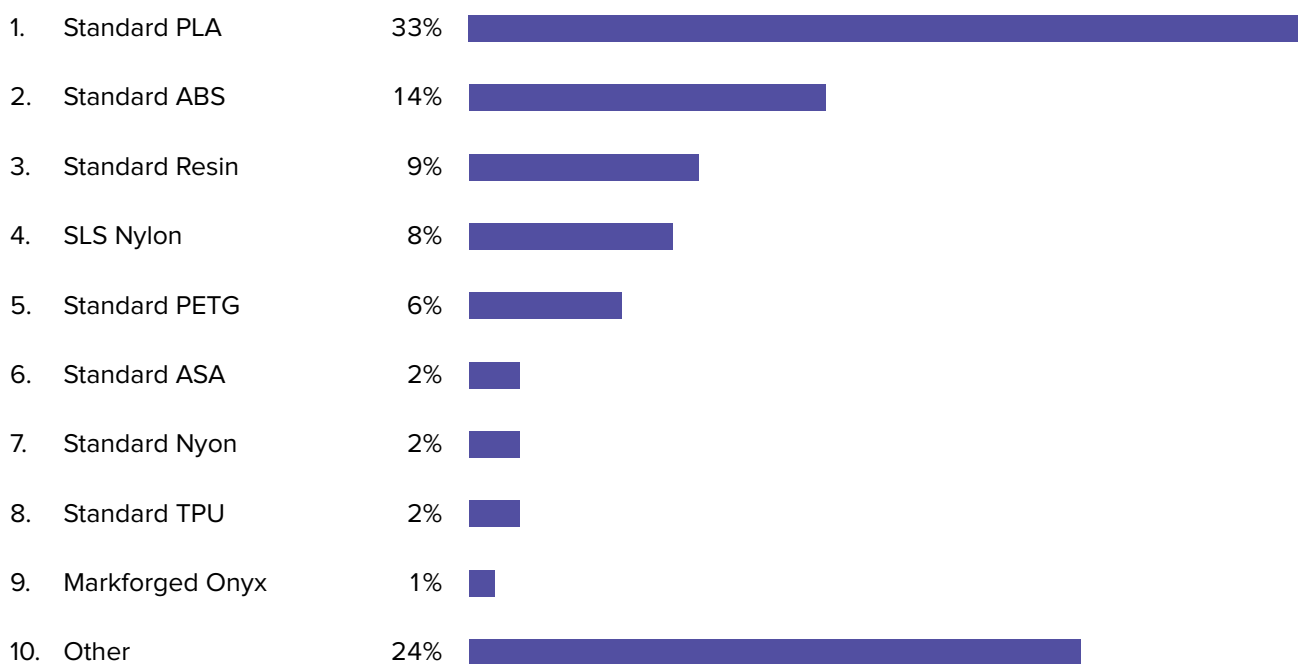
# Tech & Materials

## Most Used Materials

### Insights

The Most Used Materials has seen movement throughout the Top 10. Standard PLA has distanced itself further from ABS, at #1 with 33%, growing 3% since Q2's report. ABS, although it maintains its #2 spot with 14%, has seen its number go the opposite way with a decrease of 3%. This movement could be down to more new materials entering the market that challenge ABS's position, which is relatively hard to print and not safe for non-ventilated spaces due to its fumes.

In line with SLS' decline in the most used technologies section, SLS nylon has dropped 4% and moves from #3 to #4. Standard Resin moves up into #3 spot with 9%. Markforged's proprietary material Onyx makes its debut in the list at #9. Onyx contains chopped Carbon Fiber which makes it 1.4x stronger and stiffer than ABS.



The data displayed shows the breakdown in revenue as a percentage for each material.



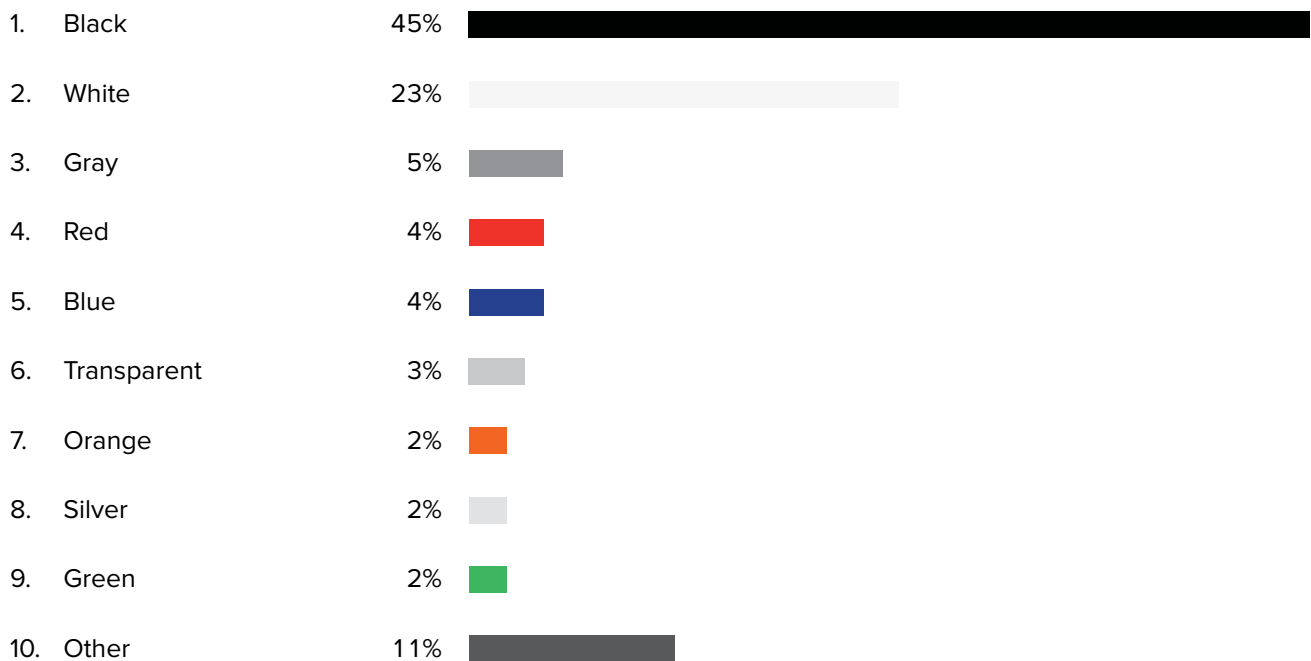
# Tech & Materials

## FDM Color Distribution

### Insights

The FDM color distribution has seen an even further dramatic change as Black takes #1 spot again growing from 40% market share to 45%. Now nearly half the parts manufactured on 3D Hubs are black. The overall spread of colors has also seen a substantial drop. Previously Other made up 24% now its just 11%. This rapid decline is in line with the standardization of colors on 3D Hubs as explained in Q2's report.

Transparent debuts in the list for the first time, the popularity of SLA/DLP could be the reason for this rise. These technologies are the predominant ones creating transparent parts.



The data displayed shows the most popular colors this quarter, analysing the colors of submitted prints.

# Geography

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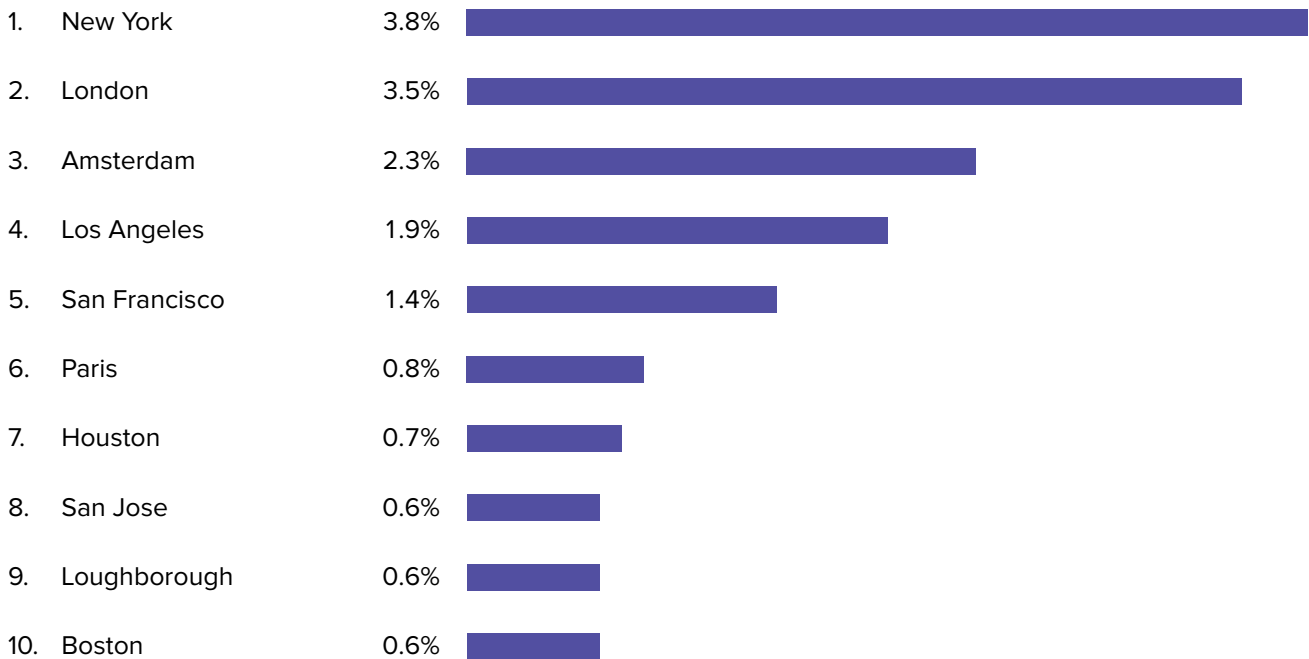
## Top Print Cities

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### Insights

The Top Print Cities have seen The Top 3 run away with it this quarter. New York at #1, London at #2 and Amsterdam at #3 have all seen increases of above 1% in their market share.

This centralization of growth is down to the fact these cities contain a lot of universities the top two especially. During the months of April/May students are preparing their final year projects many of which are using 3D printing as seen via our Student Grant Program. This conclusion is also confirmed when you see Loughborough for the first time debuting in the list, a renowned product design school.



The data displayed shows the number of prints ordered last quarter per city as a percentage of the total. Other has been omitted to emphasise the difference in the top ten cities.

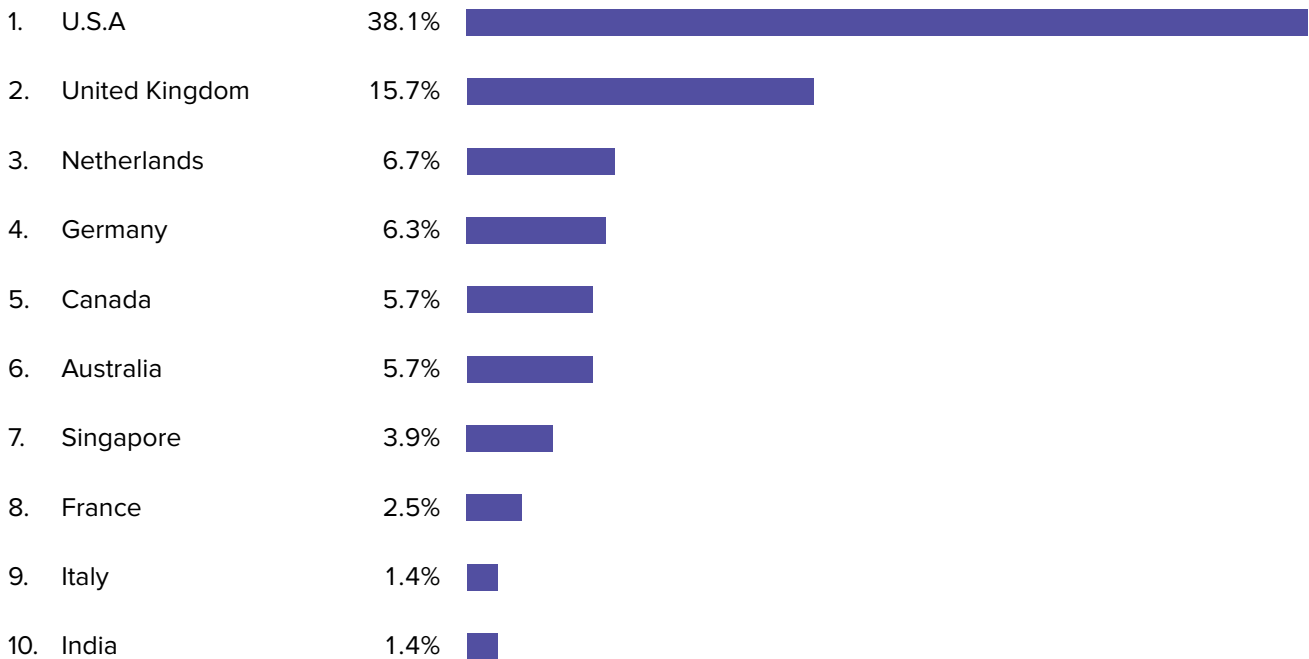
# Geography

## Top Print Countries

### Insights

The Top two countries have seen their lead further in line with top print cities which saw New York and London race ahead. U.S.A at #1 moved from 36.9% to 38.1% with the UK at #2 moving from 13.2% to 15.7%. The Netherlands gained on Canada moving into #3 as Canada dropped down into #5.

India moves into the Top 10 for the first time, sharing the same percentage as Italy with 1.4% at #10. With the increases for the top two, countries like France have seen a substantial drop in market share moving from 3.4% to 2.5%. The trend continues that countries with a heavy population of students have seen market share increase.



The data displayed shows the number of prints ordered last quarter per country as a percentage of the total. Other has been omitted to emphasise the difference in the top ten countries.

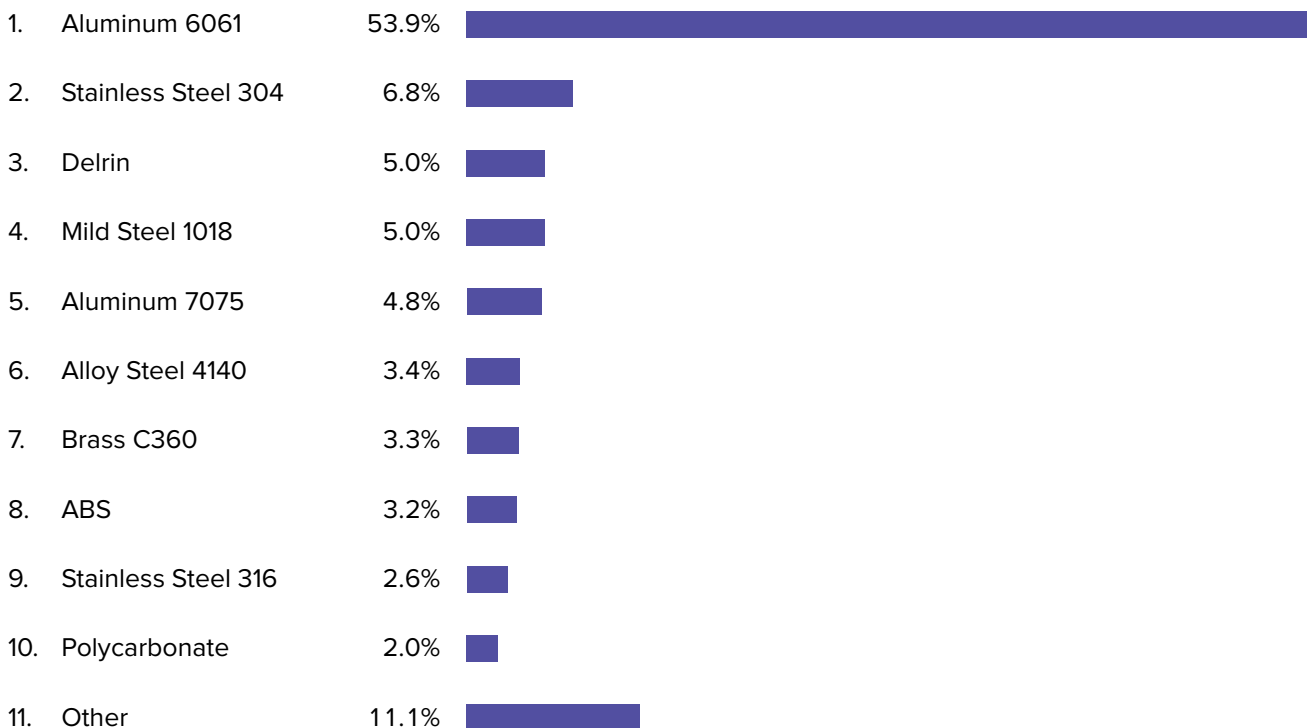
# CNC

## Most Used Materials

### Insights

In Q2 3D Hubs added 19 new materials, this change has impacted the Top 10. Aluminum 6061, the most affordable CNC material maintains #1 spot but has seen its market share marginally decrease by 2.3% to 53.9%. This decrease however still keeps the material nearly 50% more than any other.

Stainless Steel 304 at #2 has seen the biggest drop, going from 11.6% in Q2 to 6.8% now. With the introduction of Stainless Steel 316 in at #9 with 2.6% would have made an impact on this. Another material that would have impacted the use of 304 is Mild Steel 1018 which is a more economical choice with similar mechanical properties. In at #3 is new material Delrin, a plastic which is easy to machine and has high stiffness with good frictional characteristics.



The data displayed shows the most popular materials this quarter, analysing the materials of submitted parts. Other denotes a material not specified in the materials listed and various indicated an order was made up of various parts containing a variety of materials.

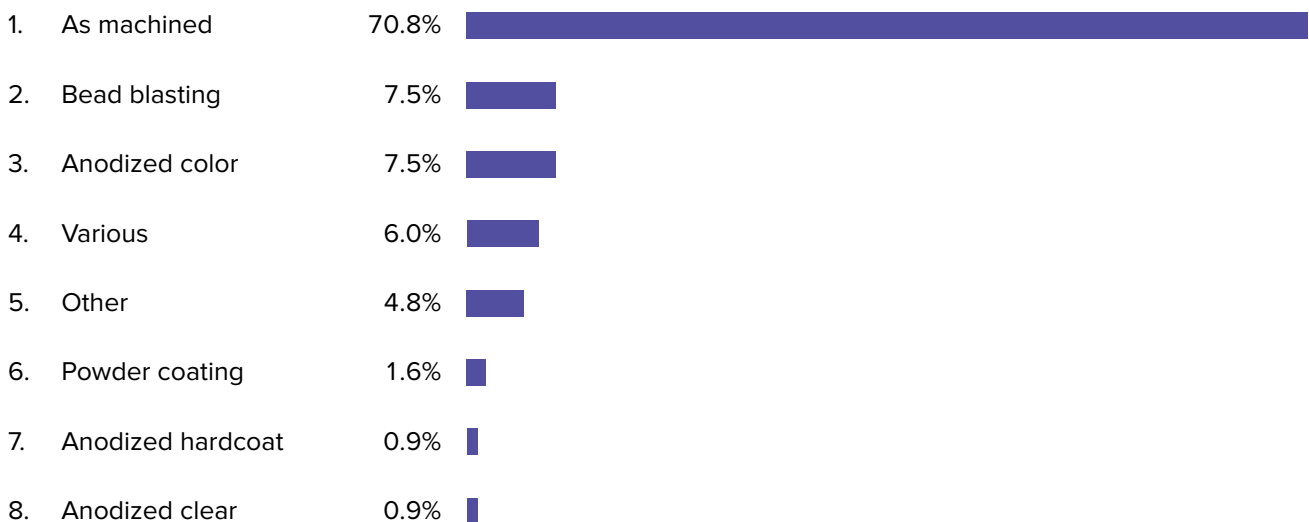
# CNC

## Most Used Finishes

### Insights

With the introduction of new material, the surface finishes requested become more varied. This is seen with As machined dropping 7% since Q2 down to 70.8% at #1. Bead blasting at #2 is still a long way off though with 7.5%. Anodized color has more than doubled its usage, up from 3.7% to 7.5%. With aluminum still dominating the most used materials top 10, it's not surprising anodized color is pushing forward, a common finish for the material.

Silk Screening has dropped out the most used finishes with various and other both gaining usage. More materials also bring requests of more varied and less traditional finishing techniques. An example of this would be chromate conversion coating used heavily by the aerospace industry.



The data displayed shows the most popular finishes this quarter, analysing the finishes chosen for submitted parts. Other denotes a material not specified in the materials listed and various indicated an order was made up of various parts containing a variety of materials.

# Resources

## **Get an Instant 3D Printing , CNC or Injection Molding Quote**

<https://www.3dhubs.com/manufacture/>

## **What is 3D Printing**

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