



## 2018 catalog

For CO<sub>2</sub> and fiber laser consumables

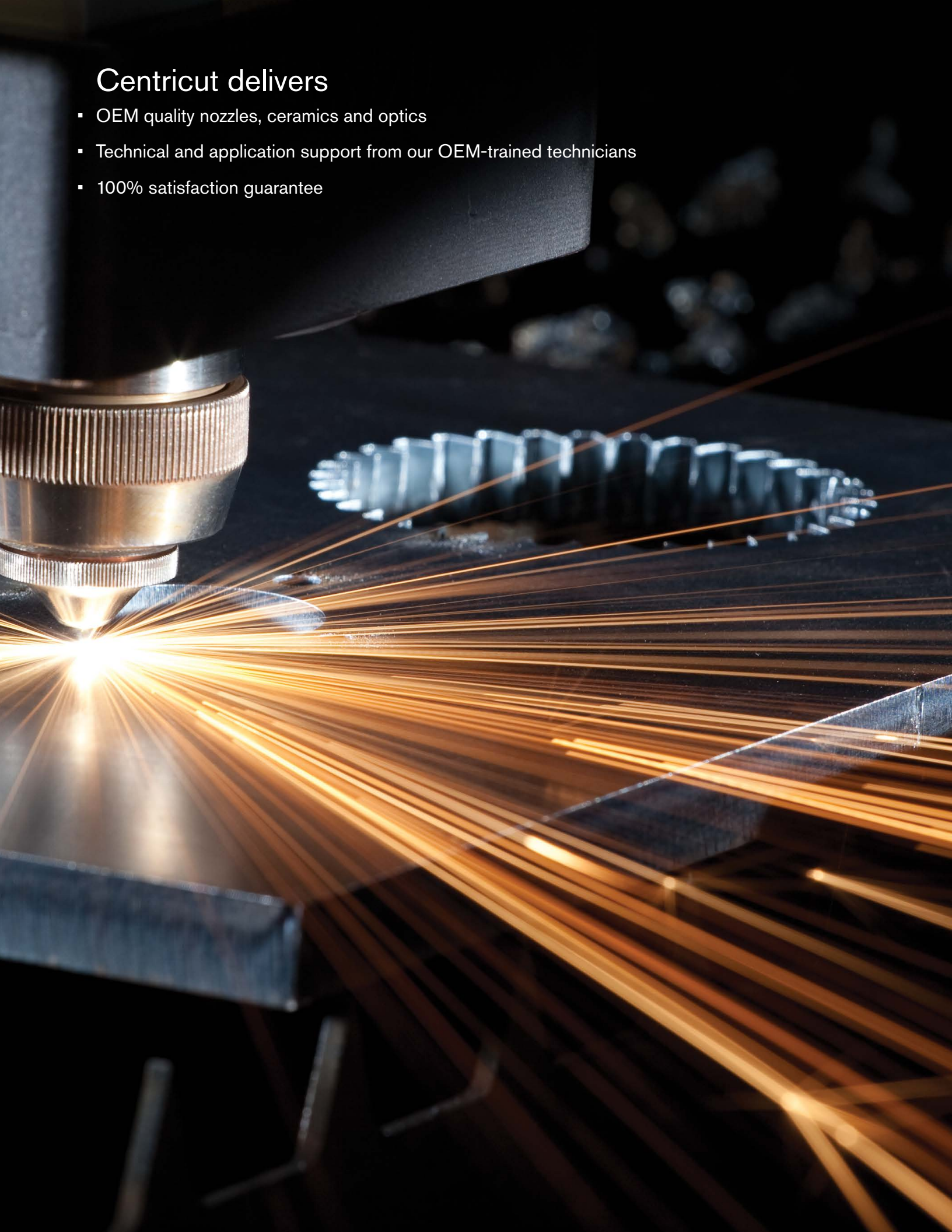
Replacement parts suitable for Mazak®





## Centricut delivers

- OEM quality nozzles, ceramics and optics
- Technical and application support from our OEM-trained technicians
- 100% satisfaction guarantee



# CO<sub>2</sub> and fiber laser nozzles

## Nozzle options

All Centricut nozzles are engineered and manufactured to the highest standards. Select the OEM quality nozzle best suited for your application needs

### Copper

Most commonly used nozzle offering good durability and nozzle life. Primary nozzle type for fiber lasers.

### Chrome plated

Shiny, mirror-like finish provides increased spatter resistance, improved durability and longer life than copper nozzles. Not recommended for use on fiber lasers.

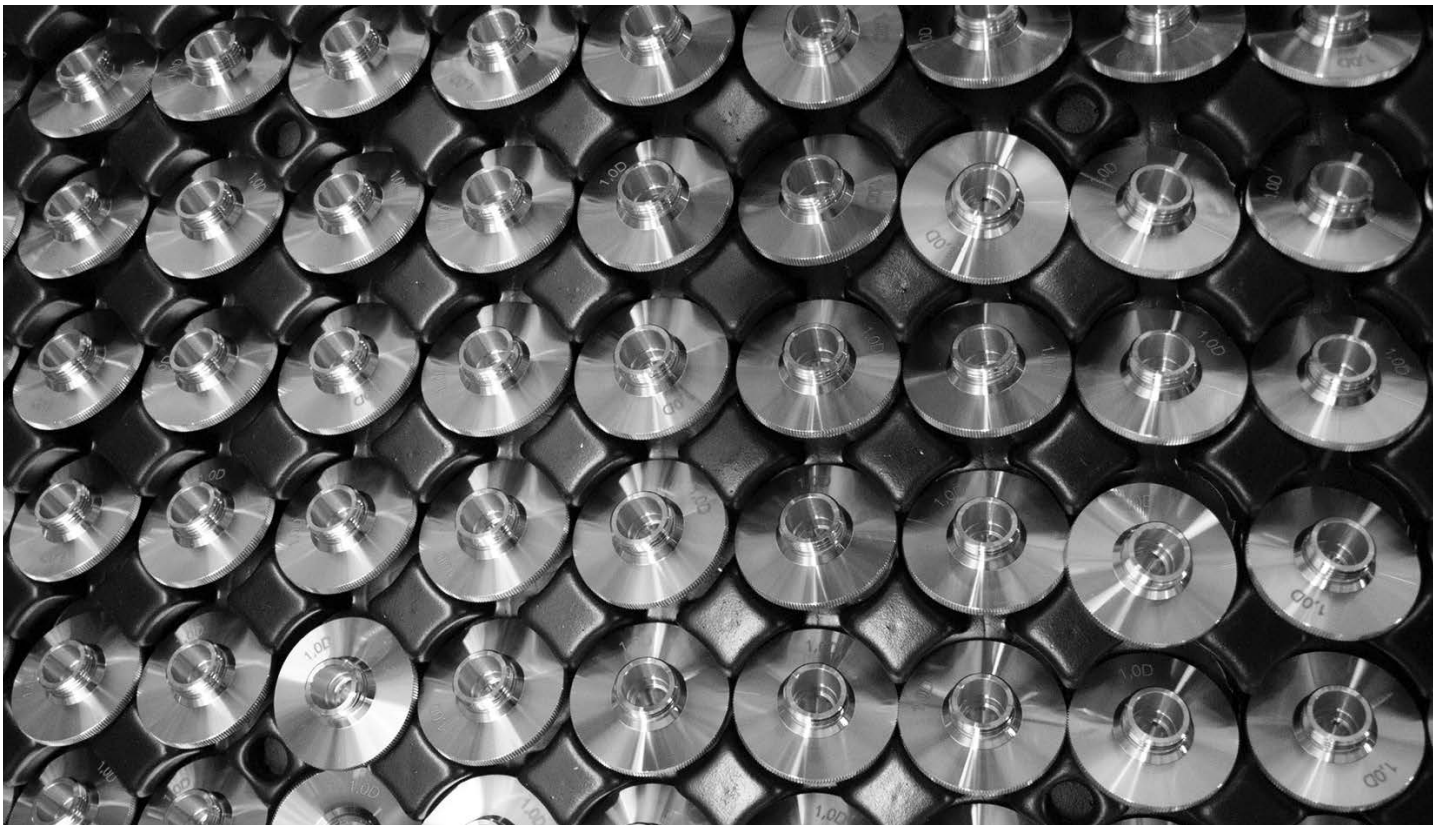
Look for CP in the part number to identify a chrome plated nozzle

### Hard chrome plated

Premium nozzles offering the highest level of durability and longest nozzle life. These nozzles are not as shiny as chrome plated and have a dull appearance. Not recommended for use on fiber lasers.

Look for HCP in the part number to identify a hard chrome nozzle.

CP (chrome plated)	Nozzles plated with chrome for increased durability. These nozzles are easier to clean, resist damage due to 'tip-ups' and have better spatter resistance over non-plated nozzles. For use in all laser cutting applications.
Conical	Conical internal geometry for high pressure, non-ferrous cutting applications using nitrogen, air or argon.
Cylindrical	Cylindrical internal geometry for low pressure, mild steel cutting applications using oxygen.
Double	Insert pressed into a standard cylindrical nozzle for improved edge quality, laminar gas flow and spatter resistance. Primarily used in mild steel applications.
HCP (hard chrome plated)	Enhanced durability chrome plated nozzles. These nozzles are easier to clean, resist damage due to 'tip-ups' and have better spatter resistance over non-plated nozzles. For use in all laser cutting applications.
HP (high pressure) HD (high density)	Conical style nozzle for high pressure, non-ferrous cutting applications using nitrogen, air or argon.
Inner	Also referred to as a 'nozzle insert'. Works in conjunction with an outer nozzle to create a double nozzle. Primarily used in mild steel applications.
Low pressure	Cylindrical style nozzle for low pressure, mild steel cutting applications using oxygen.
Outer	Works in conjunction with an inner nozzle to create a double nozzle. Primarily used in mild steel applications.
Shower	Nozzles with a center orifice surrounded by smaller jets. The smaller jets focus the assist gas into the kerf, creating improved edge quality and the ability to cut thicker material. Primarily used in mild steel applications.





# CO<sub>2</sub> and fiber laser optics

## Optics key

Lens	
MEN	Meniscus
PLX	Plano-convex
MTD	Mounted
Not MTD	Not mounted
PO	Plano
MP5 or ULA	Ultra low absorption
AR	Anti-reflection
ZNSE	Sinc-selinide
FS	Fused silica
DIA	Diameter
FL	Focal length
ET	Edge thickness
WD	Working distance

## How to handle optics

Follow these easy steps, when cleaning or changing your optic, to help maximize the life and performance of your lens

- Avoid touching coated surfaces of the lens and hold the optic by its sides
- Wear powder-free finger cots or latex gloves when handling
- Do not use any tools or sharp objects when handling the optic or when removing it from its packaging
- Ensure the work surface is clean and free of oils, grease and dirt
- Do not place the optic on hard surfaces as they scratch easily
- Once the optic has been unpacked, carefully place it on the lens tissue in which it was originally wrapped

## Optics disposal

It is important to dispose of used laser optics at a licensed industrial waste facility which is in compliance with all local, state, and federal regulations.

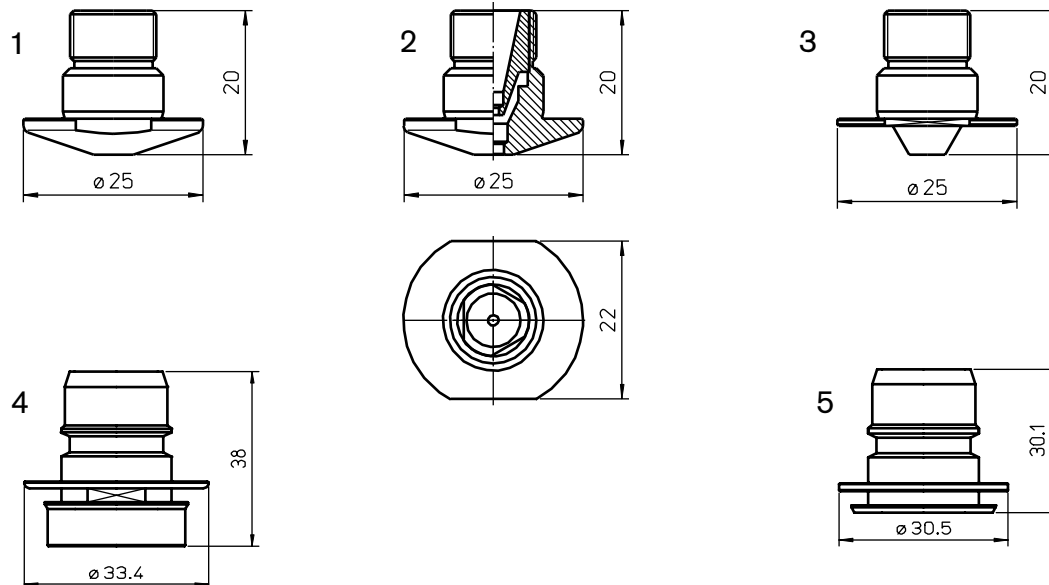
If you don't have access to a licensed industrial waste facility, and purchased your laser optics through Centricut, you may return them to Centricut for proper disposal. This service is only available to Centricut customers.

**All optics returned to Centricut must:**

- Include return authorization and invoice numbers
- Be sealed in a plastic bag to minimize any hazards
- Remove excess ZnSe powder prior to sealing

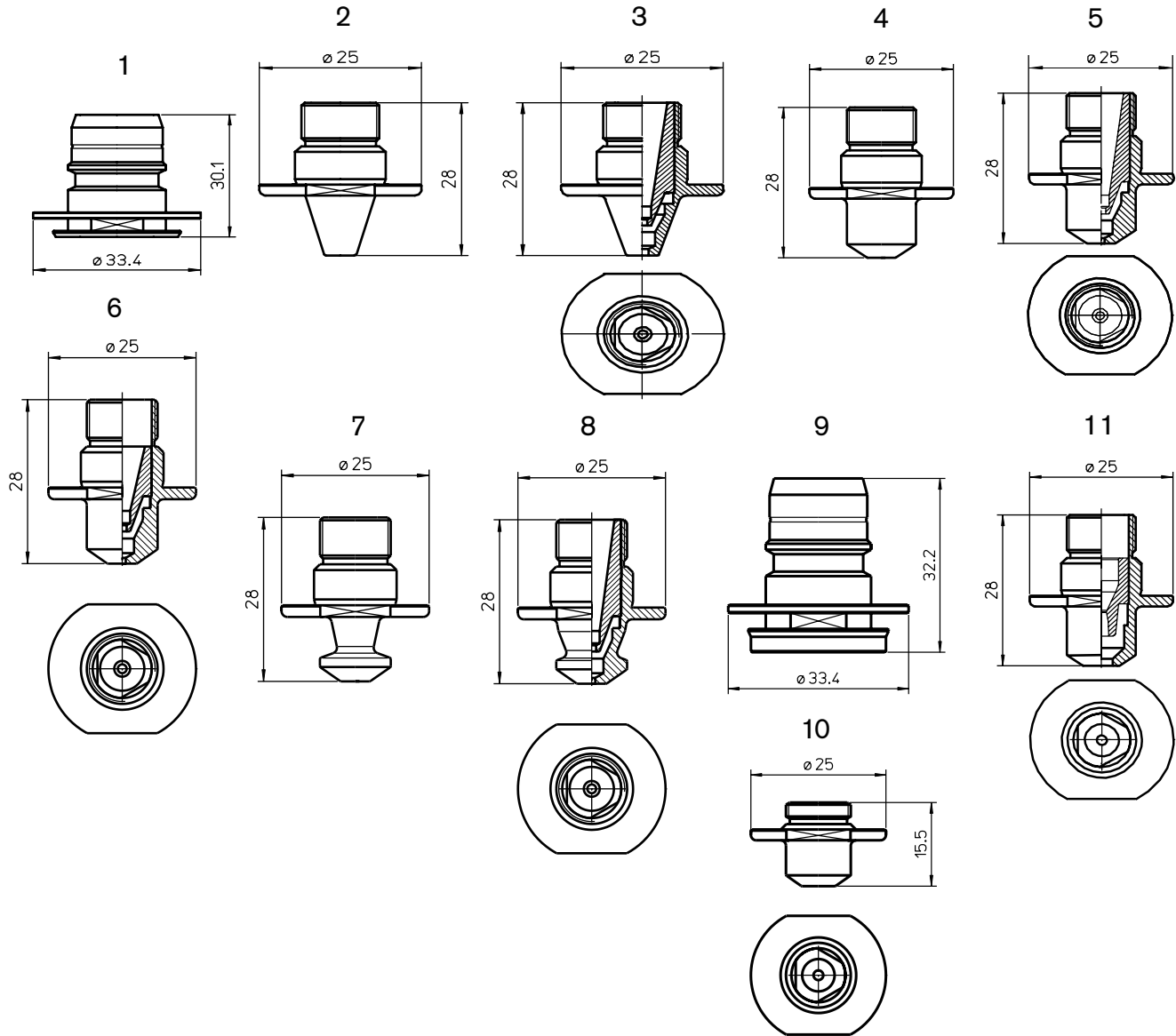
\*Acceptance of goods will be refused if not packaged correctly or if the return authorization number isn't included





### Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ368-4430CP	L941X		MZ-Nozzle, 1.0 mm CP	1
	MZ368-4470CP	L942X	46143304470	MZ-Nozzle, 1.2 mm CP	1
	MZ368-4450CP	L943X	46143304450	MZ-Nozzle, 1.5 mm CP	1
	MZ368-4455CP	L950X		MZ-Nozzle, 1.8 mm CP	1
	MZ368-4460CP	L944X	46143304460	MZ-Nozzle, 2.0 mm CP	1
	MZ368-4480CP	L945X	46143304480	MZ-Nozzle, 2.5 mm CP	1
	MZ368-4490CP	L946X	46143304490	MZ-Nozzle, 3.0 mm CP	1
	MZ368-4500CP	L947X	46143304500	MZ-Nozzle, 3.5 mm CP	1
	MZ368-4510CP	L948X	46143304510	MZ-Nozzle, 4.0 mm CP	1
2	MZ373-0001	L952X		MZ-Nozzle double, 1.2 mm CP	1
	MZ368-0005CP	L953X	46143306450	MZ-Nozzle double, 1.5 mm CP	1
	MZ373-0003	L954X	46143306460	MZ-Nozzle double, 2.0 mm CP	1
	MZ373-0004	L955X	46143306480	MZ-Nozzle double, 2.5 mm CP	1
	MZ373-0005	L956X	46143306490	MZ-Nozzle double, 3.0 mm CP	1
	MZ373-0006	L957X	46143306500	MZ-Nozzle double, 3.5 mm CP	1
	MZ373-0007	L958X	46143306510	MZ-Nozzle double, 4.0 mm CP	1
3	MZ427-0002	L1265		MZ-Nozzle, 1.2 mm	1
	MZ427-0003	L1266		MZ-Nozzle, 1.5 mm	1
	MZ427-0004	L1267		MZ-Nozzle, 2.0 mm	1
	MZ427-0005	L1268		MZ-Nozzle, 3.0 mm	1
4	MZ368-0740	AL363	36143310740	MZ-Nozzle holder	1
5	MZ368-0001	AL242	36143304420	MZ-Nozzle holder Hyper Gear	1



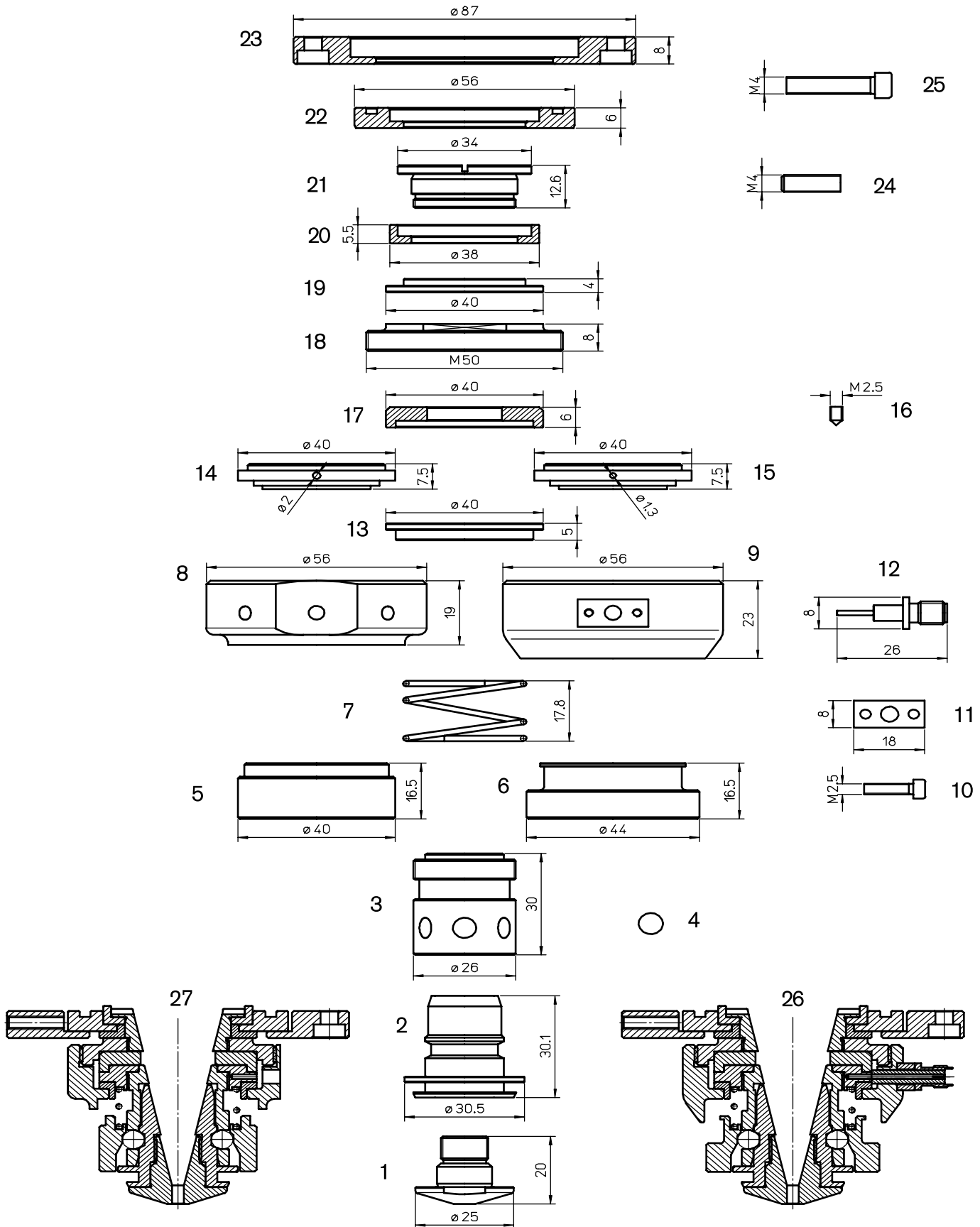
## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ368-0522	AL362	36143310522	MZ-Nozzle holder	1
2	MZ373-0308CP	L1379X		MZ-Nozzle slim, 0.8 mm CP	1
	MZ373-0310CP	L1380X		MZ-Nozzle slim, 1.0 mm CP	1
	MZ373-0341CP	L1381X	46143310341, 46143310342, 46143310343	MZ-Nozzle slim, 1.2 mm CP	1
	MZ373-0351CP	L1382X	46143310351, 46143310352, 46143310353	MZ-Nozzle slim, 1.5 mm CP	1
	MZ373-0318CP	L1389X		MZ-Nozzle slim, 1.8 mm CP	1
	MZ373-0361CP	L1383X	46143310361, 46143310362, 46143310363	MZ-Nozzle slim, 2.0 mm CP	1
	MZ373-0365CP	L1388X		MZ-Nozzle slim, 2.2 mm CP	1
	MZ373-0371CP	L1384X	46143310371, 46143310372, 46143310373	MZ-Nozzle slim, 2.5 mm CP	1
	MZ373-0381CP	L1385X	46143310381, 46143310382, 46143310383	MZ-Nozzle slim, 3.0 mm CP	1
	MZ373-0391CP	L1386X	46143310391, 46143310392, 46143310393	MZ-Nozzle slim, 3.5 mm CP	1
	MZ373-0401CP	L1387X	46143310401, 46143310402, 46143310403	MZ-Nozzle slim, 4.0 mm CP	1

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## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
3	MZ373-0300CP	L1390X	36143311508	MZ-Nozzle double slim, 0.8 mm CP	1
	MZ373-0311CP	L1391X		MZ-Nozzle double slim, 1.0 mm CP	1
	MZ373-0312CP	L1399X		MZ-Nozzle double slim, 1.2 mm CP	1
	MZ373-0315CP	L1392X	36143311500	MZ-Nozzle double slim, 1.5 mm CP	1
	MZ373-0319CP	L1400X		MZ-Nozzle double slim, 1.8 mm CP	1
	MZ373-0320CP	L1393X	36143311510, 36143311512	MZ-Nozzle double slim, 2.0 mm CP	1
	MZ373-0322CP	L1398X	36143311522	MZ-Nozzle double slim, 2.2 mm CP	1
	MZ373-0325CP	L1394X	36143311520, 36143311522	MZ-Nozzle double slim, 2.5 mm CP	1
	MZ373-0330CP	L1395X	36143311530, 36143311532	MZ-Nozzle double slim, 3.0 mm CP	1
	MZ373-0335CP	L1396X	36143311535, 36143312380	MZ-Nozzle double slim, 3.5 mm CP	1
	MZ373-0340CP	L1397X	36143312390	MZ-Nozzle double slim, 4.0 mm CP	1
	MZ373-0350CP	L1512X		MZ-Nozzle double slim, 5.0 mm CP	1
4	MZ373-1580	L1580X		MZ-Nozzle pencil, 0.8 mm CP	1
	MZ373-1581	L1581X	Q6143312210	MZ-Nozzle pencil, 1.0 mm CP	1
	MZ373-1582	L1582X	36143312220	MZ-Nozzle pencil, 1.2 mm CP	1
	MZ373-1583	L1583X	36143312230	MZ-Nozzle pencil, 1.5 mm CP	1
	MZ373-1584	L1584X	Q6143300060	MZ-Nozzle pencil, 1.8 mm CP	1
	MZ373-1585	L1585X	36143312240	MZ-Nozzle pencil, 2.0 mm CP	1
	MZ373-1586	L1586X		MZ-Nozzle pencil, 2.2 mm CP	1
	MZ373-1587	L1587X	36143312250	MZ-Nozzle pencil, 2.5 mm CP	1
	MZ373-1588	L1588X	36143312260	MZ-Nozzle pencil, 3.0 mm CP	1
	MZ373-1589	L1589X	36143312270	MZ-Nozzle pencil, 3.5 mm CP	1
	MZ373-1590	L1590X	36143312280	MZ-Nozzle pencil, 4.0 mm CP	1
	MZ373-1591	L1591X	6143355590	MZ-Nozzle pencil, 4.5 mm CP	1
5	MZ373-1592	L1592X	6283301030	MZ-Nozzle pencil, 5.0 mm CP	1
	MZ373-1593	L1593X	6283301830	MZ-Nozzle pencil, 5.5 mm CP	1
	MZ373-1600	L1600X		MZ-Nozzle double pencil, 0.8 mm CP	1
	MZ373-1601	L1601X		MZ-Nozzle double pencil, 1.0 mm CP	1
	MZ373-1602	L1602X	Q6143300080	MZ-Nozzle double pencil, 1.2 mm CP	1
	MZ373-1603	L1603X	36143312300	MZ-Nozzle double pencil, 1.5 mm CP	1
	MZ373-1604	L1604X	36143312310	MZ-Nozzle double pencil, 1.8 mm CP	1
	MZ373-1605	L1605X	36143312311	MZ-Nozzle double pencil, 2.0 mm CP	1
	MZ373-1606	L1606X		MZ-Nozzle double pencil, 2.2 mm CP	1
	MZ373-1607	L1607X	36143312320	MZ-Nozzle double pencil, 2.5 mm CP	1
	MZ373-1608	L1608X	36143312330	MZ-Nozzle double pencil, 3.0 mm CP	1
	MZ373-1609	L1609X	36143312340	MZ-Nozzle double pencil, 3.5 mm CP	1
6	MZ373-1610	L1610X	36143312350	MZ-Nozzle double pencil, 4.0 mm CP	1
	MZ373-1611	L1611X	Q6143312360	MZ-Nozzle double pencil, 4.5 mm CP	1
	MZ373-1612	L1612X	Q6143312370	MZ-Nozzle double pencil, 5.0 mm CP	1
	MZ373-1614	L1614X		MZ-Nozzle double pencil, 4.0 mm/inner 1.2 mm CP	1
	MZ373-1615	L1615X	6143355360	MZ-Nozzle double pencil, 4.0 mm/inner 1.4 mm CP	1
	MZ373-1616	L1616X	6143355370	MZ-Nozzle double pencil, 4.0 mm/inner 1.8 mm CP	1
	MZ373-1617	L1617X	6283301050	MZ-Nozzle double pencil, 4.5 mm/inner 1.2 mm CP	1
	MZ373-1618	L1618X	6283301200	MZ-Nozzle double pencil, 5.0 mm/inner 1.2 mm CP	1
7	MZ373-1619	L1619X	6283301210	MZ-Nozzle double pencil, 5.5 mm/inner 1.2 mm CP	1
	MZ373-1686	L1686X	6283301840	MZ-Nozzle double pencil, 5.5 mm/inner 2.0 mm CP	1
	MZ373-1790	L1816X	6283301790	MZ-Nozzle pencil, 1.0 mm HP CP	1
	MZ373-1800	L1817X	6283301800	MZ-Nozzle pencil, 1.2 mm HP CP	1
8	MZ373-1810	L1818X	6283301810	MZ-Nozzle pencil, 1.5 mm HP CP	1
	MZ373-1820	L1829X	6283301820	MZ-Nozzle double pencil, 1.5 mm HP CP	1
9	MZ373-1571	L1571X	Q3143300010	MZ-Nozzle double pencil SUS, 3.0 mm CP	1
	MZ373-1572	L1572X	Q6143300020	MZ-Nozzle double pencil SUS, 3.5 mm CP	1
	MZ373-1573	L1573X	Q6143300030	MZ-Nozzle double pencil SUS, 4.0 mm CP	1
	MZ373-1574	L1574X	Q6143300040	MZ-Nozzle double pencil SUS, 4.5 mm CP	1
	MZ373-1575	L1575X	Q6143300050	MZ-Nozzle double pencil SUS, 5.0 mm CP	1
10	MZ373-0465	AL465		MZ-Nozzle holder	1
11	MZ373-0030	L1890	Q6283300030	MZ-Nozzle double smooth, 6.0 mm	1
	MZ373-0020	L1891	Q6283300020	MZ-Nozzle double smooth, 7.5 mm	1
	MZ373-0010	L1892	Q6283300010	MZ-Nozzle double smooth, 9.5 mm	1



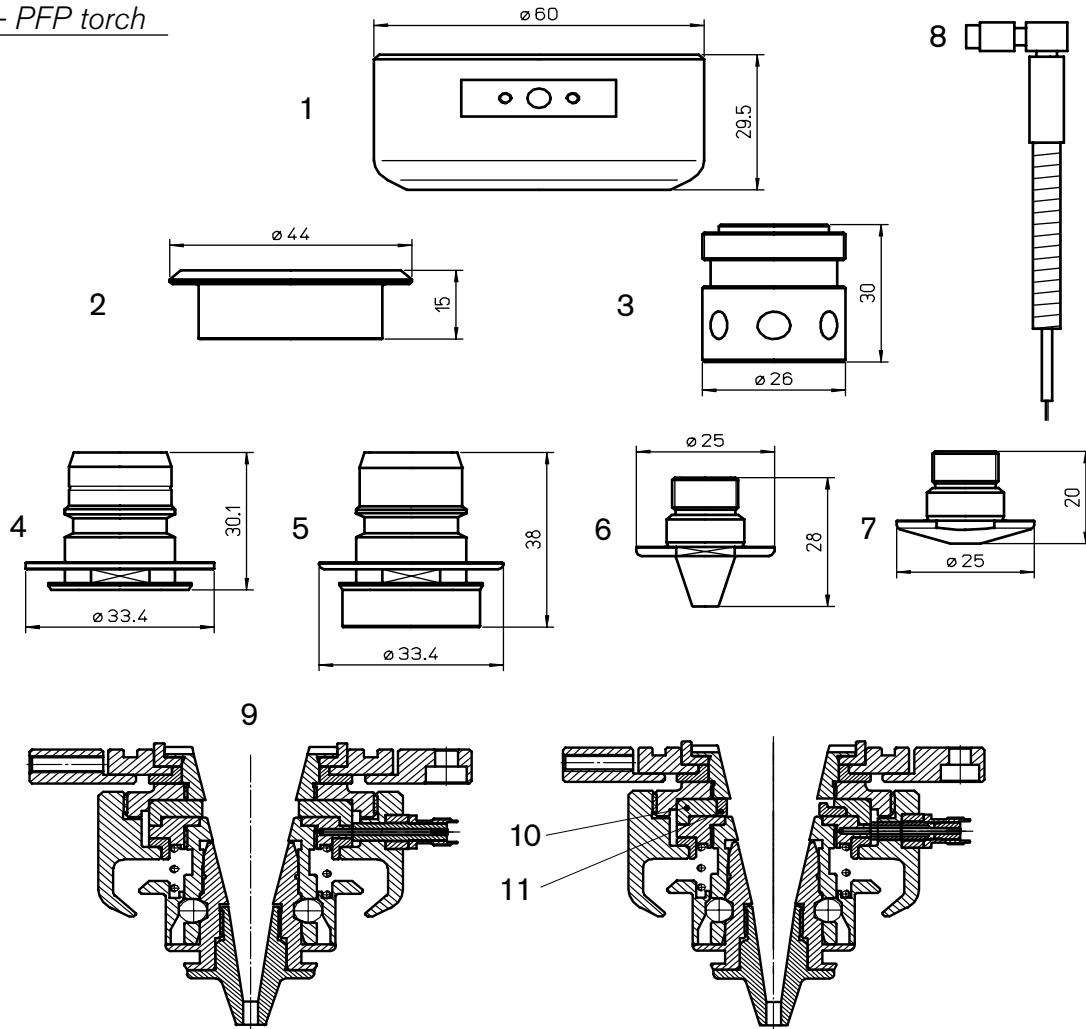


## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	Please refer to the Mazak® nozzle section				
2	MZ368-0001	AL242	36143304420	MZ-Nozzle holder Hyper Gear	1
3	MZ413-4400	AL291	36143304400, 36143304401	MZ-Coupler	1
4	MZ413-0230	AL311	46143300230	MZ-Ball kit replacement (6 pcs)	1
5	MZ413-4430	AL292	46143304430, 46143304432	MZ-Spring retainer	1
6	MZ413-8000	AL314	46143308000	MZ-Spring retainer, steel	1
7	MZ413-0220	AL289	46143300220	MZ-Spring	1
8	MZ413-3242	AL293	36143303242	MZ-Body	1
9	MZ413-7980	AL313	36143307980	MZ-Body, aluminum	1
10	MZ413-0030	AL317	46603300030, A05GS002560	MZ-Screw	1
11	MZ413-8170	AL318	46143308170	MZ-Spacer	1
12	MZ413-8190	AL315	46143308190	MZ-Connector	1
13	MZ408-0240	AL284	46143300240	MZ-Ring, ceramic	1
	MZ413-0240	AL384	46143300240	MZ-Insulating, PTFE*	1
14	MZ413-4250	AL287	46143304250	MZ-Retainer nut	1
15	MZ413-7420	AL295	46143307420, 46143307421	MZ-Retainer nut	1
16	MZ413-1180	AL322	46683301180	MZ-Screw	1
17	MZ408-4440	AL290	46143304440	MZ-Ring, ceramic	1
	MZ413-4440	AL390	46143304440	MZ-Insulating, PTFE*	1
18	MZ413-0290	AL294	46143300290	MZ-Retainer nut	1
19	MZ408-0260	AL285	46143300260	MZ-Ring, ceramic	1
	MZ413-0260	AL385	46143300260	MZ-Insulating, PTFE*	1
20	MZ408-0270	AL286	46143300270	MZ-Ring, ceramic	1
	MZ413-0270	AL386	46143300270	MZ-Insulating, PTFE*	1
21	MZ413-0280	AL288	46143300280	MZ-Retainer nut	1
22	MZ413-0320	AL316	46143300320	MZ-Ring, brass	1
23	MZ413-0332	AL320	36143300332	MZ-Ring, aluminum	1
	MZ413-0630 <b>NEW</b>	AL492	6283300630	MZ-Ring, aluminum	1
	MZ413-0620 <b>NEW</b>	AL491	6283300620	MZ-Ring, brass	1
24	MZ413-0010	AL321		MZ-Screw (4 pcs)	1
25	MZ413-0200	AL319	A06CB040200, A06CB040160	MZ-Set screw (4 pcs)	1
26	MZ413-0001	TMA50/C		MZ-Complete head (ceramic insulating)	1
27	MZ413-0002	TMA40/C		MZ-Complete head (ceramic insulating)	1

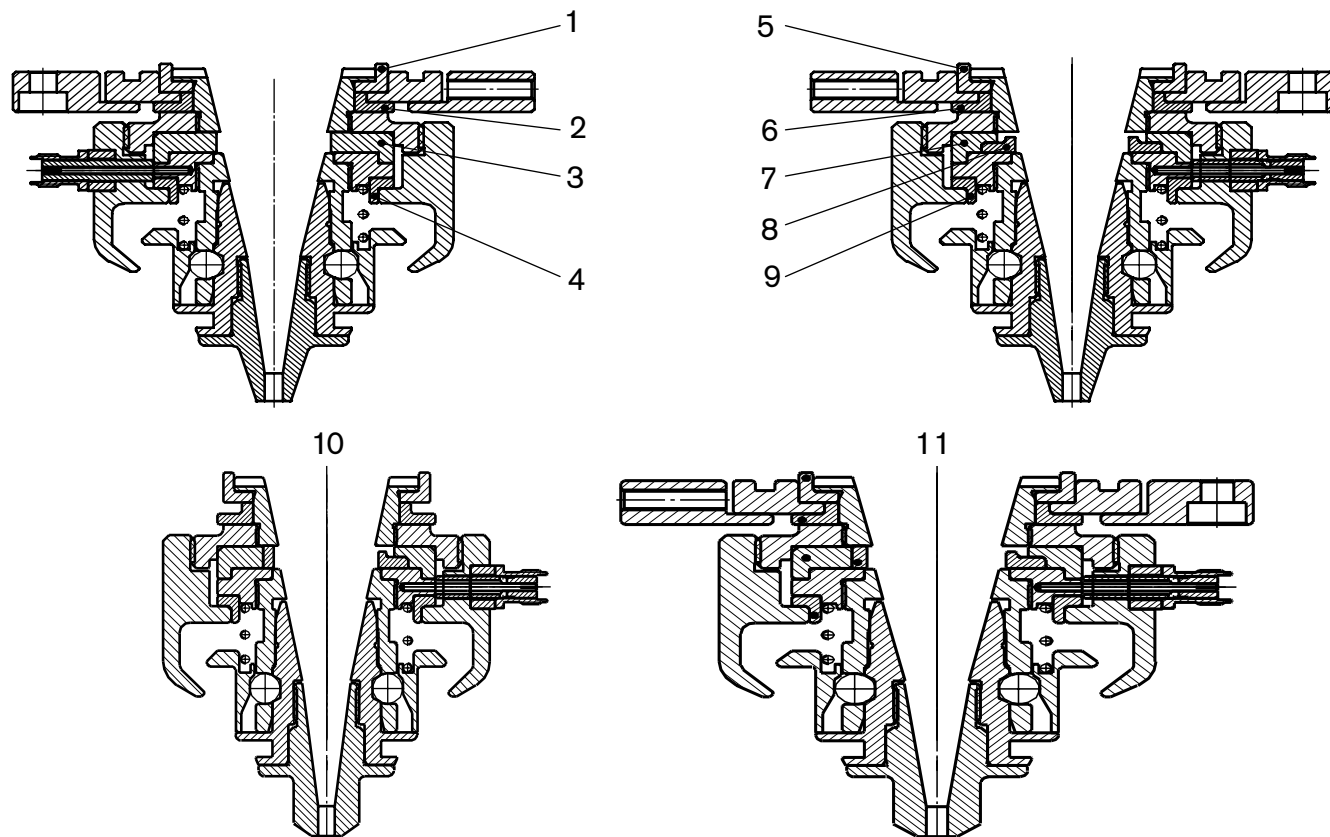
\*PolyTetraFluoroEthylene is a fluorocarbon-based polymer and is commonly abbreviated PTFE. The Teflon® brand of PTFE is manufactured only by DuPont and is not sold by Hypertherm. Hypertherm purchases other brands of PTFE from various high quality manufacturers.

*HyperGear – PFP torch*



**Consumables**

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ368-0550	AL365	36143310550	MZ-Body, aluminum	1
2	MZ368-0541	AL366	36143310541	MZ-Retainer spring, steel	1
3	MZ368-0530	AL367	36143310530	MZ-Coupler	1
4	MZ368-0522	AL362	36143310522	MZ-Nozzle holder	1
5	MZ368-0740	AL363	36143310740	MZ-Nozzle holder	1
6	Please refer to the Mazak® slim nozzle section				
7	Please refer to the Mazak® nozzle section				
8	MZ335-8290	AL368	46143308290	MZ-Sensor cable, 75 mm (3")	1
9	MZ368-0060	TMA60/C		MZ-Head w/ceramic spacer	1
10-11	MZ368-2180	AL463	46143312180	MZ-Ring, 23x4 ceramic	1
	MZ368-2170	AL464	46143312170	MZ-Ring 40x6, PPS	1

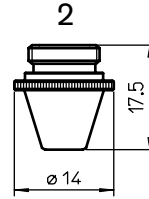
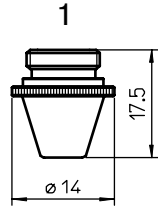


## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ408-0270	AL286	46143300270	MZ-Ring, ceramic	1
	MZ413-0270	AL386	46143300270	MZ-Insulating, PTFE*	1
2	MZ408-0260	AL285	46143300260	MZ-Ring, ceramic	1
	MZ413-0260	AL385	46143300260	MZ-Insulating, PTFE*	1
3	MZ408-4440	AL290	46143304440	MZ-Ring, ceramic	1
	MZ413-4440	AL390	46143304440	MZ-Insulating, PTFE*	1
4	MZ408-0240	AL284	46143300240	MZ-Ring, ceramic	1
	MZ413-0240	AL384	46143300240	MZ-Insulating, PTFE*	1
5	MZ368-2100	AL486	46143312100	MZ-Insulating ring, 38x5.5 PPS	1
6	MZ368-2130	AL485	46143312130	MZ-Insulating ring, 40x4 PPS	1
7	MZ368-2080	AL490	46143312080	MZ-Spacer 40x6, PPS	1
8	MZ368-2090	AL487	46143312090	MZ-Ring, 30x3 ceramic	1
9	MZ368-2120	AL484	46143312120	MZ-Insulating ring, 40x5 PPS	1
10	MZ368-0085	TMA85		MZ-Head w/PPS spacer	1
11	MZ368-0080	TMA80		MZ-Head w/PPS spacer	1

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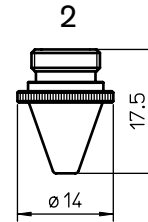
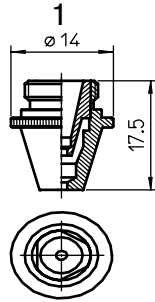




## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ322-0008X	L3078	46603350508	MZ-Nozzle, 0.8 mm (10 pk)*	10
	MZ322-0511-1.0	L69	46603350511	MZ-Nozzle, 1.0 mm	1
	MZ322-0511X	L3069	46603350511	MZ-Nozzle, 1.0 mm (10 pk)	10
	MZ322-0512-1.2	L77	46603350512	MZ-Nozzle, 1.2 mm	1
	MZ322-0512X	L3077	46603350512	MZ-Nozzle, 1.2 mm (10 pk)	10
	MZ322-0520-1.5	L127	4660335052B	MZ-Nozzle, 1.5 mm	1
	PT322-0520X	L30127	4660335052B	PT-Nozzle, 1.5 mm (10 pk)	10
	MZ322-1517X	L3079	46603350517	MZ-Nozzle, 1.7 mm (10 pk)*	10
	MZ322-0517X	L30281	46603350517-1,8	MZ-Nozzle, 1.8 mm (10 pk)	10
	MZ322-0522-2.0	L80	4660335052C	MZ-Nozzle, 2.0 mm	1
	MZ322-0522X	L3080	4660335052C	MZ-Nozzle, 2.0 mm (10 pk)	10
	MZ322-0022X	L30282	46603350522-2,2	MZ-Nozzle, 2.2 mm (10 pk)*	10
	MZ322-0525-2.5	L124	46603350525	MZ-Nozzle, 2.5 mm	1
	MZ322-0025X	L30124	46603350525	MZ-Nozzle, 2.5 mm (10 pk)	10
	MZ322-0530-3.0	L150	46603350530	MZ-Nozzle, 3.0 mm	1
	MZ322-0030X	L30150	46603350530	MZ-Nozzle, 3.0 mm (10 pk)	10
	MZ322-0530-3.5	L708	46603350530-3,5	MZ-Nozzle, 3.5 mm	1
	MZ322-1035X	L30708	46603350530-3,5	MZ-Nozzle, 3.5 mm (10 pk)	10
	MZ322-0530-4.0	L709	46603350530-4,0	MZ-Nozzle, 4.0 mm	1
	MZ322-1040X	L30709	46603350530-4,0	MZ-Nozzle, 4.0 mm (10 pk)	10
2	MZ322-0511CPX	L3069X	46603350511	MZ-Nozzle, 1.0 mm CP (10 pk)*	10
	MZ322-0512CPX	L3077X	46603350512	MZ-Nozzle, 1.2 mm CP (10 pk)*	10
	PT322-0520CPX	L30127X	4660335052B	PT-Nozzle, 1.5 mm CP (10 pk)*	10
	MZ322-1517CPX	L3079X	46603350517	MZ-Nozzle, 1.7 mm CP (10 pk)*	10
	MZ322-0522CPX	L3080X	4660335052C	MZ-Nozzle, 2.0 mm CP (10 pk)*	10
	MZ322-0025CPX	L30124X	46603350525	MZ-Nozzle, 2.5 mm CP (10 pk)*	10
	MZ322-0030CPX	L30150X	46603350530	MZ-Nozzle, 3.0 mm CP (10 pk)*	10
	MZ322-1035CPX	L30708X	46603350530-3,5	MZ-Nozzle, 3.5 mm CP (10 pk)*	10
	MZ322-1040CPX	L30709X	46603350530-4,0	MZ-Nozzle, 4.0 mm CP (10 pk)*	10

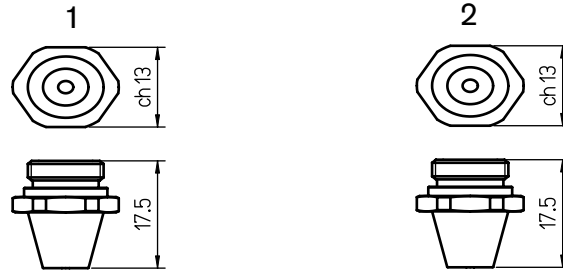
\*Available in single packs. To order single packs, remove the 'X' at the end of the part number (e.g. AM123-4567X would be AM123-4567)



## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ346-0001X	L30615		MZ-Nozzle double, 1.0 mm (10 pk)**	10
	MZ346-0002X	L30616		MZ-Nozzle double, 1.2 mm (10 pk)*	10
	MZ346-0003X	L30617	46683302400	MZ-Nozzle double, 1.5 mm (10 pk)*	10
	MZ346-0004X	L30618		MZ-Nozzle double, 1.7 mm (10 pk)*	10
	MZ346-0005X	L30619		MZ-Nozzle double, 1.8 mm (10 pk)*	10
	MZ346-0006X	L30620	46683302390	MZ-Nozzle double, 2.0 mm (10 pk)*	10
	MZ346-0007X	L30621		MZ-Nozzle double, 2.2 mm (10 pk)*	10
	MZ346-0008X	L30622	46683302400	MZ-Nozzle double, 2.5 mm (10 pk)*	10
	MZ346-0009X	L30623	46683302410	MZ-Nozzle double, 3.0 mm (10 pk)*	10
	MZ346-0002CPX	L30616X		MZ-Nozzle double, 1.2 mm CP (10 pk)*	10
	MZ346-0003CPX	L30617X		MZ-Nozzle double, 1.5 mm CP (10 pk)*	10
	MZ346-0004CPX	L30618X		MZ-Nozzle double, 1.7 mm CP (10 pk)*	10
	MZ346-0006CPX	L30620X		MZ-Nozzle double, 2.0 mm CP (10 pk)*	10
	MZ346-0007CPX	L30621X		MZ-Nozzle double, 2.2 mm CP (10 pk)*	10
	MZ346-0008CPX	L30622X		MZ-Nozzle double, 2.5 mm CP (10 pk)*	10
	MZ346-0009CPX	L30623X		MZ-Nozzle double, 3.0 mm CP (10 pk)*	10
2	MZ321-0521-0.8	L266	46603350521	MZ-Nozzle, 0.8 mm	1
	MZ321-0008X	L30266	46603350521	MZ-Nozzle, 0.8 mm (10 pk)	10
	MZ321-0521-1.0	L250	46603350521	MZ-Nozzle, 1.0 mm	1
	MZ321-0010X	L30250	46603350521	MZ-Nozzle, 1.0 mm (10 pk)	10
	MZ321-0521-1.2	L251	46603350521	MZ-Nozzle, 1.2 mm	1
	MZ321-0012X	L30251	46603350521	MZ-Nozzle, 1.2 mm (10 pk)	10
	MZ321-0520-1.5	L252	46603350520	MZ-Nozzle, 1.5 mm	1
	MZ321-0520X	L30252	46603350520	MZ-Nozzle, 1.5 mm (10 pk)	10
	MZ321-0521-1.7	L253		MZ-Nozzle, 1.7 mm	1
	MZ321-0017X	L30253	46603350521	MZ-Nozzle, 1.7 mm (10 pk)	10
	MZ321-0522-2.0	L254	46603350522, 46683301721	MZ-Nozzle, 2.0 mm	1
	MZ321-0054X	L30254	46603350522	MZ-Nozzle, 2.0 mm (10 pk)	10
	MZ321-0522-2.5	L770	46603350522	MZ-Nozzle, 2.5 mm	1
	MZ321-1025X	L30770	46603350522	MZ-Nozzle, 2.5 mm (10 pk)	10
	MZ321-0522-3.0	L771	46683301281	MZ-Nozzle, 3.0 mm	1
	MZ321-1030X	L30771	46683301281	MZ-Nozzle, 3.0 mm (10 pk)	10
	MZ321-0012CPX	L30251X	46603350521	MZ-Nozzle, 1.2 mm CP (10 pk)	10
	MZ321-520-1.5CP	L252X	46603350520	MZ-Nozzle, 1.5 mm CP	1
	MZ321-0520CPX	L30252X	46603350520	MZ-Nozzle, 1.5 mm CP (10 pk)	10
	MZ321-522-2.0CP	L254X	46603350522	MZ-Nozzle, 2.0 mm CP	1
	MZ321-0054CPX	L30254X	46603350522	MZ-Nozzle, 2.0 mm CP (10 pk)	10
	MZ321-522-2.5CP	L770X	46603350522	MZ-Nozzle, 2.5 mm CP	1
	MZ321-1025CPX	L30770X	46603350522	MZ-Nozzle, 2.5 mm CP (10 pk)	10
	MZ321-522-3.0CP	L771X	46683301281	MZ-Nozzle, 3.0 mm CP	1
	MZ321-1030CPX	L30771X	46683301281	MZ-Nozzle, 3.0 mm CP (10 pk)	10

\*Available in single packs. To order single packs, remove the 'X' at the end of the part number (e.g. AM123-4567X would be AM123-4567)

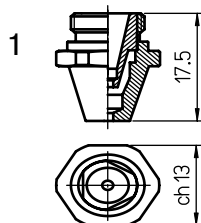


### Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ385-0508X	L30725	46603350508	MZ-Nozzle hexagonal, 0.8 mm (10 pk)*	10
	MZ385-0511X	L30726	46603350511	MZ-Nozzle hexagonal, 1.0 mm (10 pk)*	10
	MZ385-05052X	L30727	4660335052A	MZ-Nozzle hexagonal, 1.2 mm (10 pk)*	10
	MZ385-05052BX	L30728	4660335052B	MZ-Nozzle hexagonal, 1.5 mm (10 pk)*	10
	MZ385-0517X	L30729	46603350517	MZ-Nozzle hexagonal, 1.7 mm (10 pk)*	10
	MZ385-517X	L30730	46603350517-1,8	MZ-Nozzle hexagonal, 1.8 mm (10 pk)*	10
	MZ385-05052CX	L30731	4660335052C	MZ-Nozzle hexagonal, 2.0 mm (10 pk)*	10
	MZ385-0522X	L30732	46603350522-2,2	MZ-Nozzle hexagonal, 2.2 mm (10 pk)*	10
	MZ385-0003X	L30733	4660335052D	MZ-Nozzle hexagonal, 2.5 mm (10 pk)*	10
	MZ385-1003X	L30734	46603350530	MZ-Nozzle hexagonal, 3.0 mm (10 pk)*	10
	MZ385-0530X	L30736	46603350530-4,0	MZ-Nozzle hexagonal, 4.0 mm (10 pk)*	10
2	MZ385-0511CPX	L30726X	46603350511	MZ-Nozzle hexagonal, 1.0 mm CP (10 pk)*	10
	MZ385-05052CPX	L30727X	4660335052A	MZ-Nozzle hexagonal, 1.2 mm CP (10 pk)*	10
	MZ385-052CPX	L30728X	4660335052B	MZ-Nozzle hexagonal, 1.5 mm CP (10 pk)*	10
	MZ385-0052CPX	L30731X	4660335052C	MZ-Nozzle hexagonal, 2.0 mm CP (10 pk)*	10
	MZ385-0522CPX	L30732X	46603350522-2,2	MZ-Nozzle hexagonal, 2.2 mm CP (10 pk)*	10
	MZ385-0003CPX	L30733X	4660335052D	MZ-Nozzle hexagonal, 2.5 mm CP (10 pk)*	10
	MZ385-1003CPX	L30734X	46603350530	MZ-Nozzle hexagonal, 3.0 mm CP (10 pk)*	10
	MZ385-0030CPX	L30735X	46603350530-3,5	MZ-Nozzle hexagonal, 3.5 mm CP (10 pk)*	10
	MZ385-0530CPX	L30736X	46603350530-4,0	MZ-Nozzle hexagonal, 4.0 mm CP (10 pk)*	10

\*Available in single packs. To order single packs, remove the 'X' at the end of the part number (e.g. AM123-4567X would be AM123-4567)

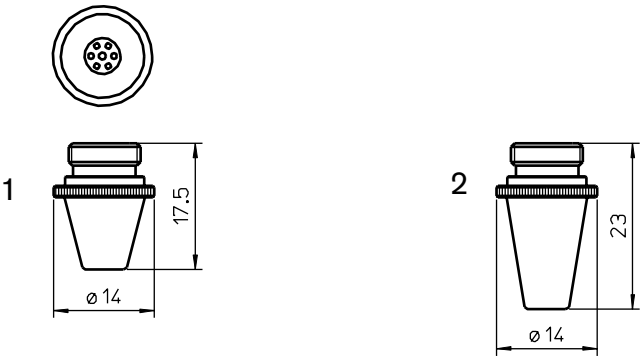




## Consumables

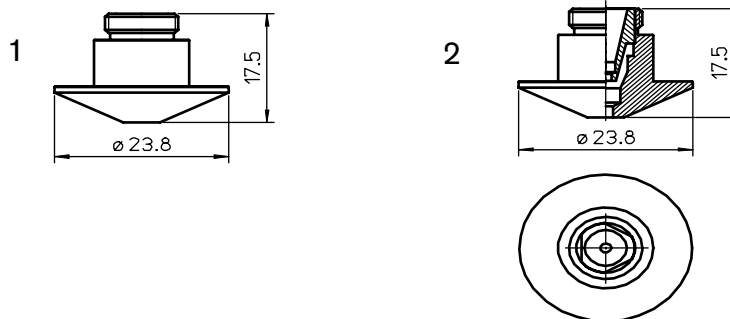
	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ419-0001X	L301223		MZ-Nozzle double hexagonal, 1.2 mm (10 pk)*	10
	MZ419-0002X	L301224		MZ-Nozzle double hexagonal, 1.5 mm (10 pk)*	10
	MZ419-0003X	L301225		MZ-Nozzle double hexagonal, 1.8 mm (10 pk)*	10
	MZ419-0004X	L301226		MZ-Nozzle double hexagonal, 2.0 mm (10 pk)*	10
	MZ419-0005X	L301227		MZ-Nozzle double hexagonal, 2.2 mm (10 pk)*	10
	MZ419-0006X	L301228		MZ-Nozzle double hexagonal, 2.5 mm (10 pk)*	10
	MZ419-0001CPX	L301223X		MZ-Nozzle double hexagonal, 1.2 mm CP (10 pk)*	10
	MZ419-0002CPX	L301224X		MZ-Nozzle double hexagonal, 1.5 mm CP (10 pk)*	10
	MZ419-0004CPX	L301226X		MZ-Nozzle double hexagonal, 2.0 mm CP (10 pk)*	10
	MZ419-0006CPX	L301228X		MZ-Nozzle double hexagonal, 2.5 mm CP (10 pk)*	10
	MZ419-0007CPX	L301229X		MZ-Nozzle double hexagonal, 3.0 mm CP (10 pk)*	10

\*Available in single packs. To order single packs, remove the 'X' at the end of the part number (e.g. AM123-4567X would be AM123-4567)



**Consumables**

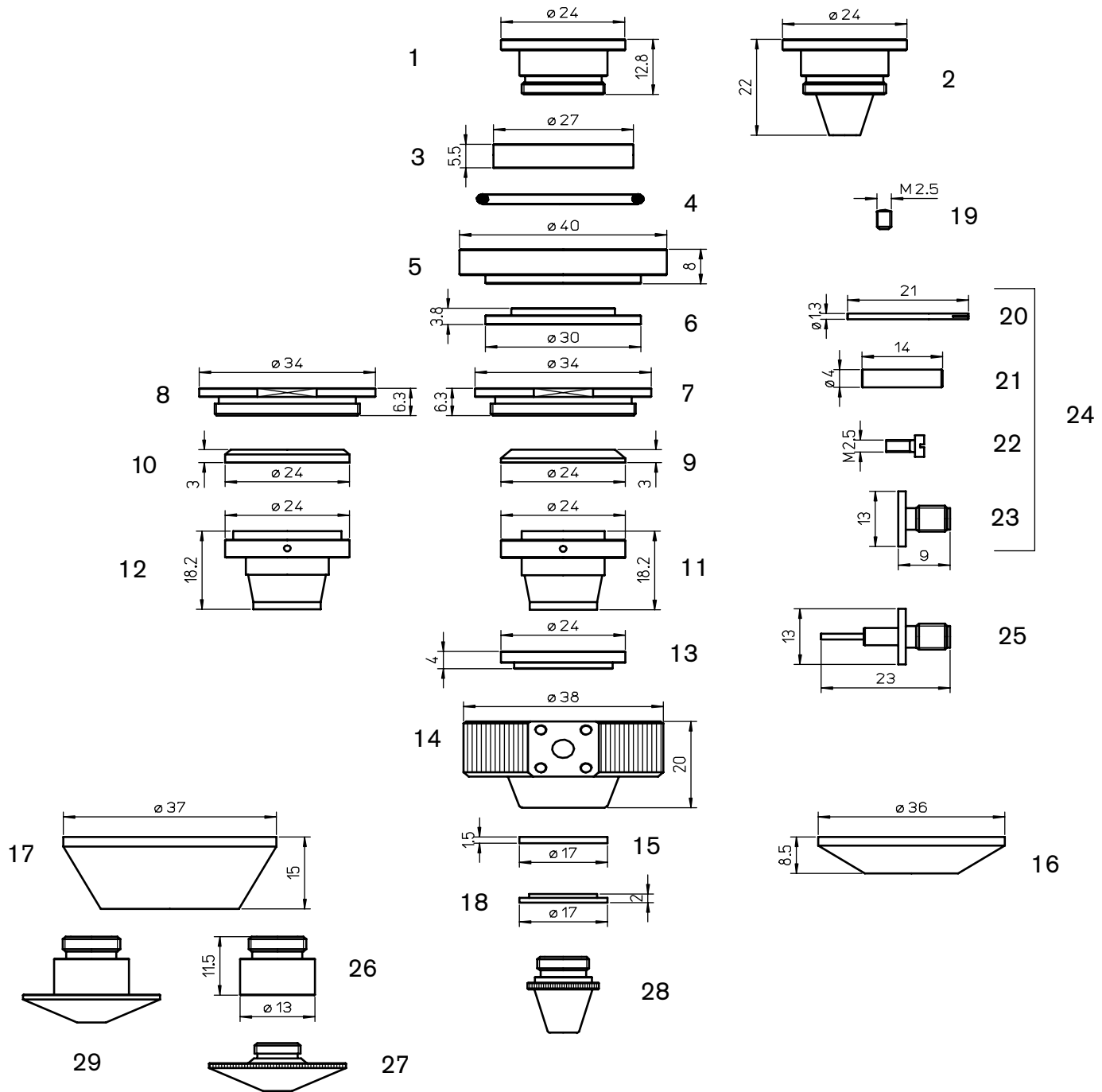
	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ322-0523 (not shown)	L492	46603350523	MZ-Nozzle shower, 1.0 mm	1
	MZ322-0523-1.5	L493		MZ-Nozzle shower, 1.5 mm	1
	MZ322-0523-2.0	L497		MZ-Nozzle shower, 2.0 mm	1
2	MZ322-0001	L284		MZ-Nozzle long, 2.0 mm	1
	MZ322-0001CP	L284X		MZ-Nozzle long, 2.0 mm CP	1



## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ335-0004	L428		MZ-Nozzle, 1.0 mm	1
	MZ335-0011	L423		MZ-Nozzle, 1.2 mm	1
	MZ335-1950	L429	46683301950	MZ-Nozzle, 1.5 mm	1
	MZ335-1821	L430	46683301821	MZ-Nozzle, 2.0 mm	1
	MZ335-1960	L431	46683301960	MZ-Nozzle, 2.5 mm	1
	MZ335-1970	L432	46683301970	MZ-Nozzle, 3.0 mm	1
	MZ335-0006	L472		MZ-Nozzle, 3.5 mm	1
	MZ335-0013	L473		MZ-Nozzle, 4.0 mm	1
	MZ335-0014	L474		MZ-Nozzle, 4.5 mm	1
	MZ335-0004CP	L428X		MZ-Nozzle, 1.0 mm CP	1
	MZ335-0007CP	L423X		MZ-Nozzle, 1.2 mm CP	1
	MZ335-1950CP	L429X	46683301950	MZ-Nozzle, 1.5 mm CP	1
	MZ335-1821CP	L430X	46683301821	MZ-Nozzle, 2.0 mm CP	1
	MZ335-1960CP	L431X	46683301960	MZ-Nozzle, 2.5 mm CP	1
	MZ335-1970CP	L432X	46683301970	MZ-Nozzle, 3.0 mm CP	1
	MZ335-0006CP	L472X		MZ-Nozzle, 3.5 mm CP	1
	MZ335-0013CP	L473X		MZ-Nozzle, 4.0 mm CP	1
	MZ335-0014CP	L474X		MZ-Nozzle, 4.5 mm CP	1
2	MZ360-0001	L850		MZ-Nozzle double, 1.0 mm	1
	MZ360-0002	L851		MZ-Nozzle double, 1.2 mm	1
	MZ360-0003	L852	46683302420	MZ-Nozzle double, 1.5 mm	1
	MZ360-0004	L858		MZ-Nozzle double, 1.8 mm	1
	MZ360-0005	L853	46683302430	MZ-Nozzle double, 2.0 mm	1
	MZ360-0007	L854	46683302440	MZ-Nozzle double, 2.5 mm	1
	MZ360-0008	L855	46683302450	MZ-Nozzle double, 3.0 mm	1
	MZ360-0001CP	L850X		MZ-Nozzle double, 1.0 mm CP	1
	MZ360-0002CP	L851X		MZ-Nozzle double, 1.2 mm CP	1
	MZ360-0003CP	L852X	46683302420	MZ-Nozzle double, 1.5 mm CP	1
	MZ360-0005CP	L853X	46683302430	MZ-Nozzle double, 2.0 mm CP	1
	MZ360-0007CP	L854X	46683302440	MZ-Nozzle double, 2.5 mm CP	1
	MZ360-0008CP	L855X	46683302450	MZ-Nozzle double, 3.0 mm CP	1
	MZ360-0009CP	L856X		MZ-Nozzle double, 3.5 mm CP	1





## Consumables

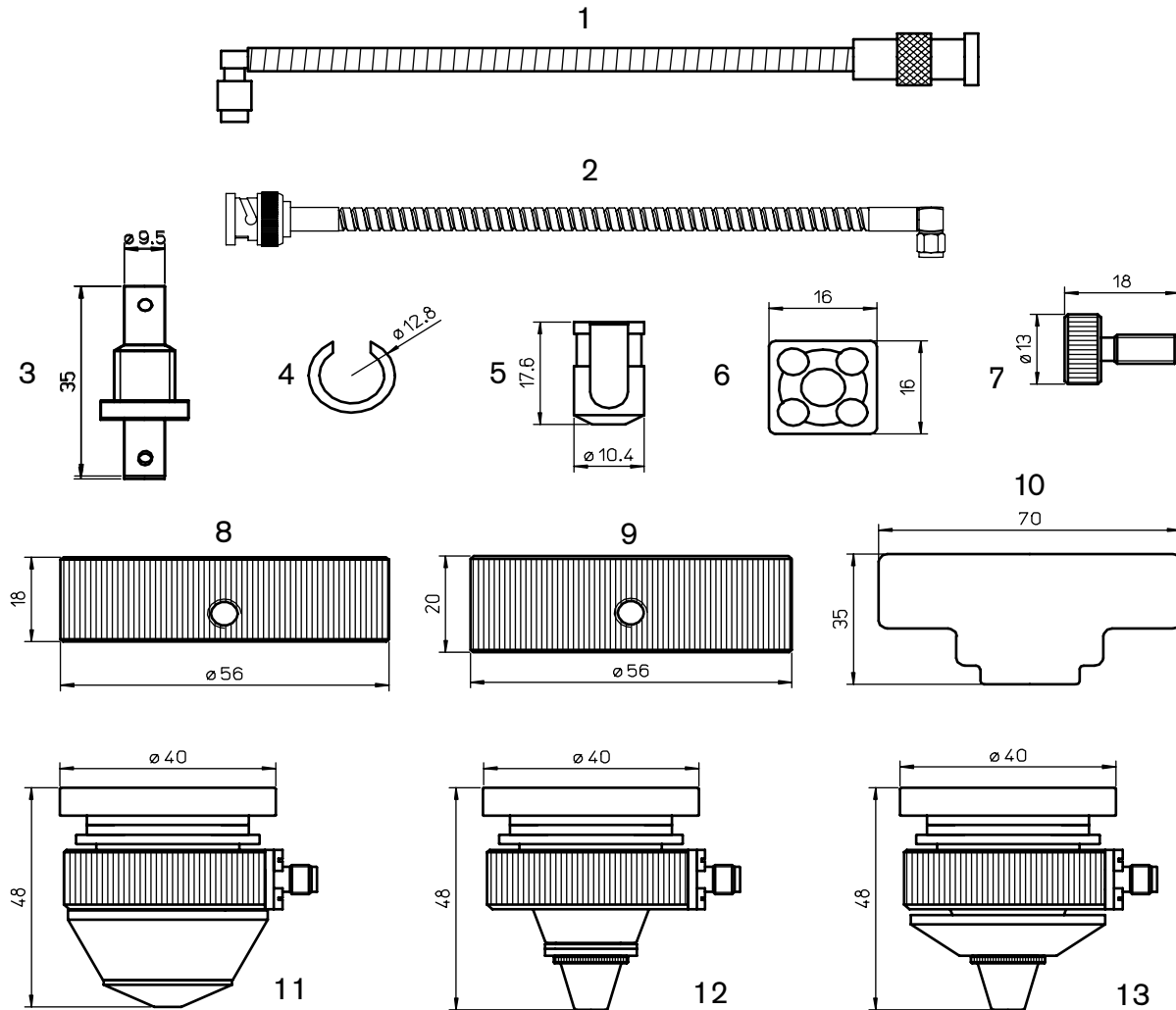
	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ335-1110	AL74	46683301110, 46773300500	MZ-Bracket, copper	1
2	MZ335-0100	AL112		MZ-Central body, copper	1
3	MZ335-1080	AL80	46683301080, 46683302081	MZ-Spacer 27x5.5, PTFE*	1
	MZ335-1080P	AL80/P	46683301080, 46683302081	MZ-Ring, plastic	1
	MZ335-1080C	AL280	46683301080, 46683302081	MZ-Ring, ceramic	1
	MZ335-1080M	ALM280	46683301080, 46683302081	MZ-Spacer 27x5.5, ceramic	1

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## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
4	MZ309-3200	AL97	J2600S03200	MZ-O-ring external base	1
5	MZ335-1070	AL84	46683301070	MZ-Base, brass	1
6	MZ335-1090	AL79	46683301090, 46683302091	MZ-Spacer 30x4, PTFE*	1
	MZ335-0090C	AL79/P	46683301090, 46683302091	MZ-Spacer 30x4, special	1
	MZ335-1090C	AL279	46683301090, 46683302091	MZ-Ring, ceramic	1
	MZ335-1090M	ALM279	46683301090, 46683302091	MZ-Spacer 30x4, ceramic	1
7	MZ335-1100	AL83	46683301100	MZ-Bracket, copper	1
8	MZ335-1101	AL376	46773300510	MZ-Nut, copper	1
9	MZ335-1120	AL77	46683301120	MZ-Spacer 24x3, PTFE*	1
	MZ335-1120LL	AL77/P	46683301120	MZ-Ring long life	1
	MZ335-1120C	AL277	46683301120	MZ-Ring, ceramic	1
	MZ335-1120M	ALM277	46683301120, 46773300710	MZ-Spacer, 24x3, ceramic	1
10	MZ335-0710	AL377	46773300710	MZ-Ring, ceramic	1
	MZ335-0710M	ALM377	46773300710	MZ-Spacer 24x3, ceramic	1
11	MZ335-0850	AL75	46683300850	MZ-Nozzle body, copper	1
12	MZ335-0720	AL253	46773300720, 46773300721	MZ-Nozzle body, copper	1
13	MZ335-1130	AL78	46683301130, 46683302111	MZ-Spacer 24x4, PTFE*	1
	MZ335-1130LL	AL78/P	46683301130	MZ-Ring long life	1
	MZ335-1130C	AL278	46683301130	MZ-Spacer, ceramic	1
	MZ335-1130M	ALM278	46683301130	MZ-Spacer 24x4, ceramic	1
14	MZ335-1140	AL73	46683301140, 36773300530	MZ-Housing, aluminum	1
15	MZ335-1150	AL81	46683301150	MZ-Spacer 17x1.5, PTFE*	1
16	MZ335-1930	AL111	46683301930	MZ-Nozzle body cover	1
	MZ335-1930LL	AL111/P	46683301930P	MZ-Nozzle body cover, long life	1
	MZ335-0009	AL275	46683301930C	MZ-Protective cover, ceramic	1
17	MZ335-1841	AL118	46683301841	MZ-Nozzle cover	1
18	MZ335-1160	AL82	46683301160	MZ-Ring, 17x2, copper	1
19	MZ335-1180	AL119	46683301180	MZ-Bolt	1
20	MZ335-1170	AL76	46683301170	MZ-Contact	1
21	MZ335-0030	AL88		MZ-Connecting pipe, PTFE *	1
22	MZ335-0000	AL127	46683300000	MZ-Screws for connector kit MZ335-0001 (4 pcs)	4
23	MZ335-1113	AL113	46683301170	MZ-Connector	1
24	MZ335-0001	AL154	46683301170	MZ-Connector kit	1
25	MZ335-0001A	AL213	46683301171	MZ-Connector kit, assembled	1
26	MZ335-1830	AL128	46683301830	MZ-Nozzle adapter	1
27	Please refer to the Trumpf® nozzle section				
28	Please refer to the Mazak® nozzle section				
29	Please refer to the Mazak® nozzle section				

\*PolyTetraFluoroEthylene is a fluorocarbon-based polymer and is commonly abbreviated PTFE. The Teflon® brand of PTFE is manufactured only by DuPont and is not sold by Hypertherm. Hypertherm purchases other brands of PTFE from various high quality manufacturers.



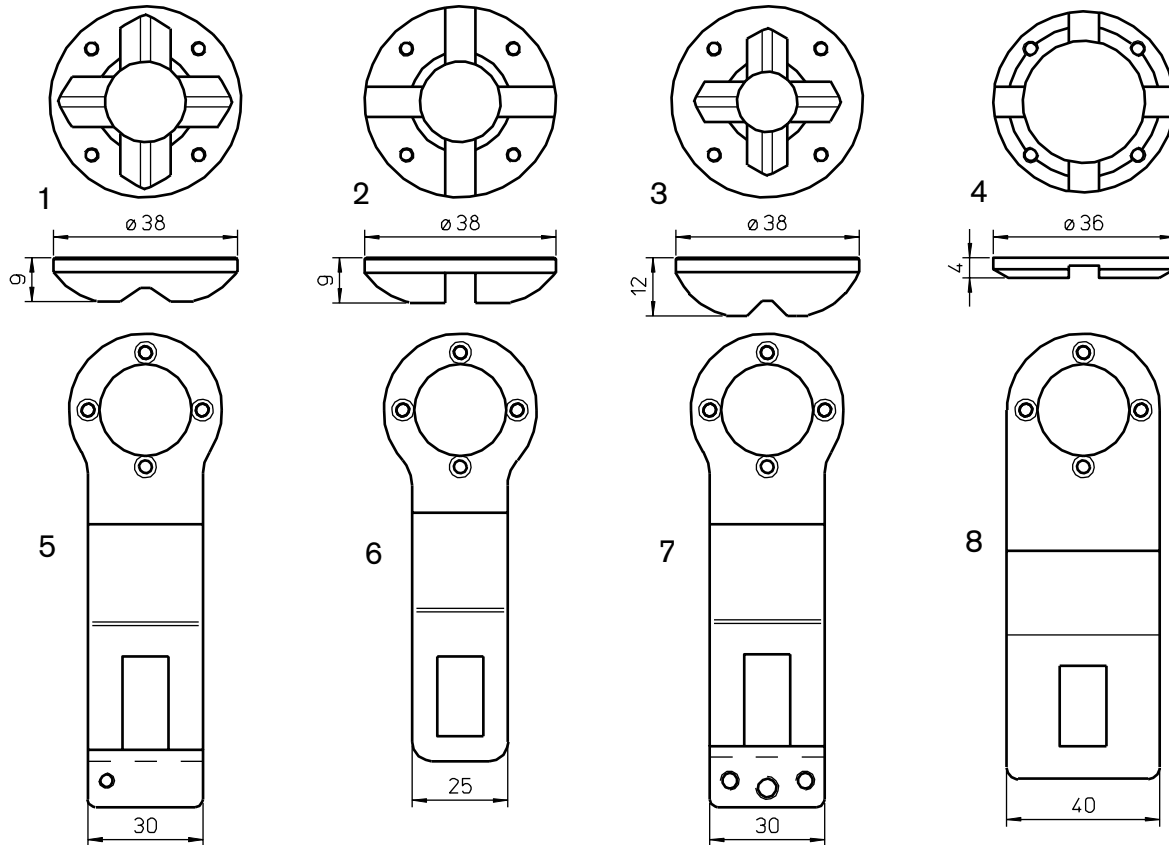
### Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ335-1980	AL103	46683301980, 46683301982	MZ-Sensor head connecting cable, short 280 mm (11")	1
	MZ335-1330	AL103/S	46683301330	MZ-Sensor head connecting cable, long 310 mm (12")	1
2	MZ335-1330A		09BSA-A-12I	MZ-Sensor cable, 305 mm (12") armored	1
	MZ335-1980A		09BSA-A-11I	MZ-Sensor cable, 280 mm (11") armored	1
3	MZ335-0005	AL104		MZ-Connecting cable adapter	1
4	MZ335-1870	AL155	46683301870, 46683301920	MZ-Cover clips	1
5	MZ335-1860	AL156	46683301860, 46683301910	MZ-Cable connector cover	1
	MZ335-1860LL	AL156/P	46683301860	MZ-Connector cover, long life	1
6	MZ335-1850	AL157	46683301850, 46683301851	MZ-Connector cover	1
	MZ335-1850P	AL157/P	46683301850	MZ-Cover, plastic	1
7	MZ335-0320	AL152	46683300032	MZ-Bolt M5 x 0.5	1
8	MZ335-0930	AL153	46683300930	MZ-Ring	1
	MZ335-0003	AL166		MZ-Ring kit	1
9	MZ335-0931	AL192		MZ-Ring H <sub>2</sub> O	1
10	MZ335-1230	AL165	46683301230	MZ-Plate	1

## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
11	MZ335-0002	TMA10		MZ-Head w/PTFE* spacer	1
	MZ335-0012	TMA10/P		MZ-Head w/long life spacer	1
12	MZ335-1014	TMA20		MZ-Head w/PTFE* spacer	1
	MZ335-0015	TMA20/P		MZ-Head w/long life spacer	1
	MZ335-0016	TMA20/C		MZ-Head w/ceramic spacer	1
13	MZ335-0017	TMA30		MZ-Head w/PTFE spacer	1
	MZ335-0018	TMA30/P		MZ-Head w/long life spacer	1
	MZ335-0019	TMA30/C		MZ-Head w/ceramic spacer	1

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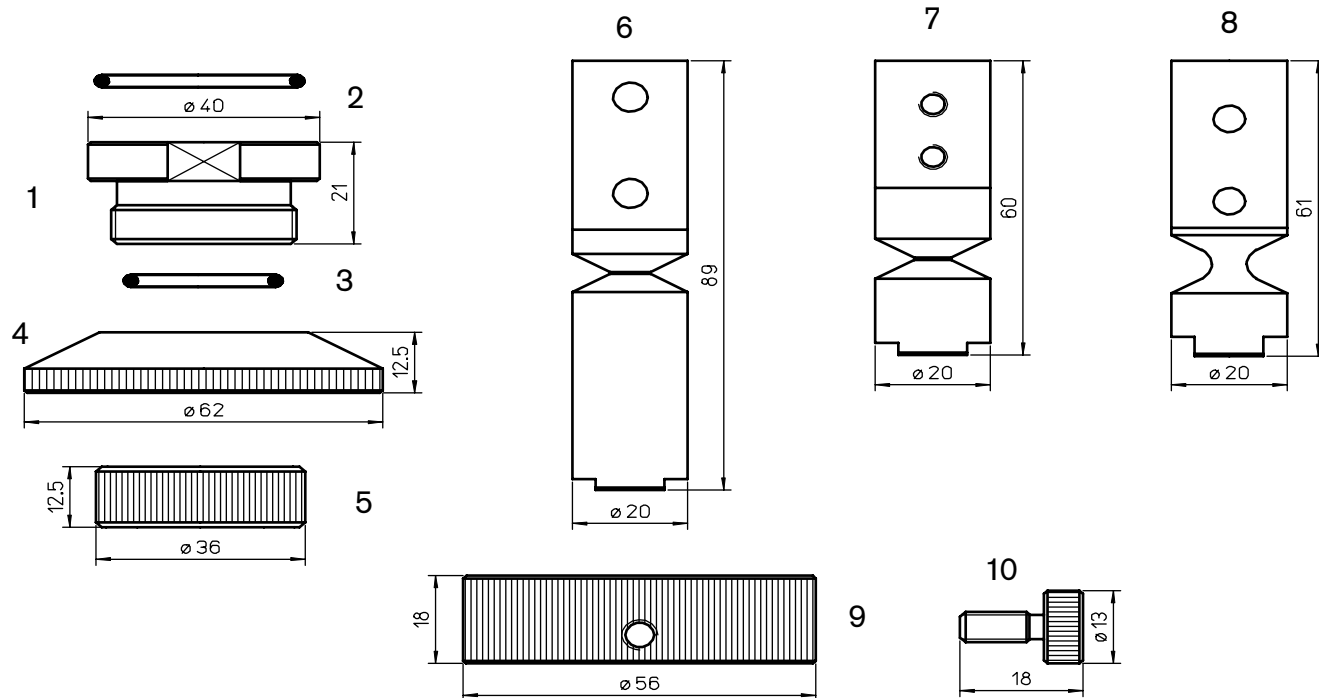


### Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ309-5080	AL10	46602350080	MZ-Stylus foot H9, brass	1
	MZ309-5080CP	AL145		MZ-Stylus foot H9, brass CP	1
	MZ309-1043	AL15	46572301043	MZ-Stylus foot H9, steel	1
	MZ309-1045	AL16	46572301045	MZ-Stylus foot H9, PTFE*	1
2	MZ309-0001	AL132		MZ-Stylus foot H9, brass	1
	MZ309-0001CP	AL146		MZ-Stylus foot H9, brass CP	1
	MZ309-0004	AL133		MZ-Stylus foot H9, steel	1
3	MZ309-1041	AL17	46572301041, 46602350070	MZ-Stylus foot H12, brass	1
	MZ309-1042	AL59	46572301042, 46572301041S	MZ-Stylus foot H12, steel	1
	MZ309-1041T	AL18	46572301041T	MZ-Stylus foot H12, PTFE*	1
4	MZ309-0520	AL117	46512300520	MZ-Stylus foot H4, brass	1
5	MZ309-0005	AL64		MZ-Stylus arm w/screw M4	1
	MZ309-0580	AL66	36602300580	MZ-Stylus arm w/screw M6	1
6	MZ309-0560	AL60	36602300560, 36682300050	MZ-Stylus arm	1
7	MZ309-0281	AL167	36682300281	MZ-Stylus arm w/screw M6 and M5	1
8	MZ309-0020	AL168	36602350020	MZ-Stylus arm large offset	1
	MZ309-001 (not shown)		68057488	MZ-Screws for stylus feet (10 pcs)	10

\*PolyTetraFluoroEthylene is a fluorocarbon-based polymer and is commonly abbreviated PTFE. The Teflon® brand of PTFE is manufactured only by DuPont and is not sold by Hypertherm. Hypertherm purchases other brands of PTFE from various high quality manufacturers.

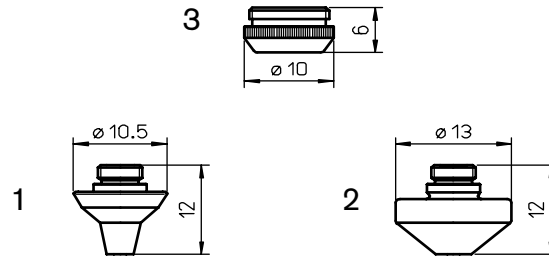




### Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ309-0080	AL63	46523300080	MZ-Base	1
2	MZ309-3200	AL97	J2600S03200	MZ-O-ring external base	1
3	MZ309-2200	AL98	J2600S02200	MZ-O-ring internal base	1
4	MZ309-0030	AL57	46683300030	MZ-Retainer	1
5	MZ309-1720	AL13	46583301720	MZ-Retainer nut	1
6	MZ309-0550	AL12	36602300230	MZ-Breakaway bar L89-M8	1
7	MZ309-0280	AL14	36682300280, 36673300280	MZ-Breakaway bar L60-M8	1
8	MZ309-0101	AL121	36572300101, 36572301012	MZ-Breakaway bar L61-M6	1
9	MZ335-0930	AL153	46683300930	MZ-Ring	1
	MZ335-0003	AL166		MZ-Ring kit	1
10	MZ335-0320	AL152	46683300032	MZ-Bolt M5 x 0.5	1

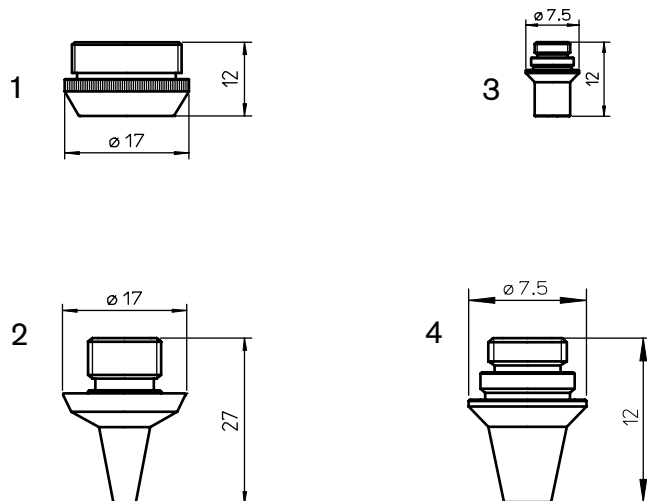
Mazak® 3D – Precitec® 5”C/MG – 5”H/MG



### Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	PT347-0005X	L30554	46713300290-10	PT-Nozzle 3D, 1.0 mm (10 pk)*	10
	PT347-0290-1.2	L555	46713300290-12	PT-Nozzle 3D, 1.2 mm	1
	PT347-0090X	L30555	46713300290-12	PT-Nozzle 3D, 1.2 mm (10 pk)	10
	PT347-0290X	L30556	46713300290-15, P0352-381-00015	PT-Nozzle 3D, 1.5 mm (10 pk)*	10
	PT347-0118X	L30557	P0352-377-00018	PT-Nozzle 3D, 1.8 mm (10 pk)	10
	PT347-0280X	L30558	46713300310, P0352-382-00020	PT-Nozzle 3D, 2.0 mm (10 pk)*	10
	PT347-0001X	L30560	46713300280-25	PT-Nozzle 3D, 2.5 mm (10 pk)*	10
	PT347-0002X	L30563	46713300280-30, 46713300430	PT-Nozzle 3D, 3.0 mm (10 pk)*	10
	PT347-0035X	L30564	46713300280-35	PT-Nozzle 3D, 3.5 mm (10 pk)*	10
2	PT347-0004X	L30576		PT-Nozzle 2D, 1.0 mm (10 pk)	10
	PT347-0310-1.2	L577	46713300310	PT-Nozzle 2D, 1.2 mm	1
	PT347-0012X	L30577	46713300310	PT-Nozzle 2D, 1.2 mm (10 pk)	10
	PT347-0310X	L30578	P0352-386-00015	PT-Nozzle 2D, 1.5 mm (10 pk)*	10
	PT347-0300X	L30580	46713300300, P0352-387-00020	PT-Nozzle 2D, 2.0 mm (10 pk)*	10
	PT347-0003X	L30581	46713300300-25	PT-Nozzle 2D, 2.5 mm (10 pk)*	10
	PT347-0006X	L30582	46713300300-30	PT-Nozzle 2D, 3.0 mm (10 pk)*	10
3	PT347-0320	AL160	46713300321, P0352-311-00001	PT-Union Nut, Vespel	1

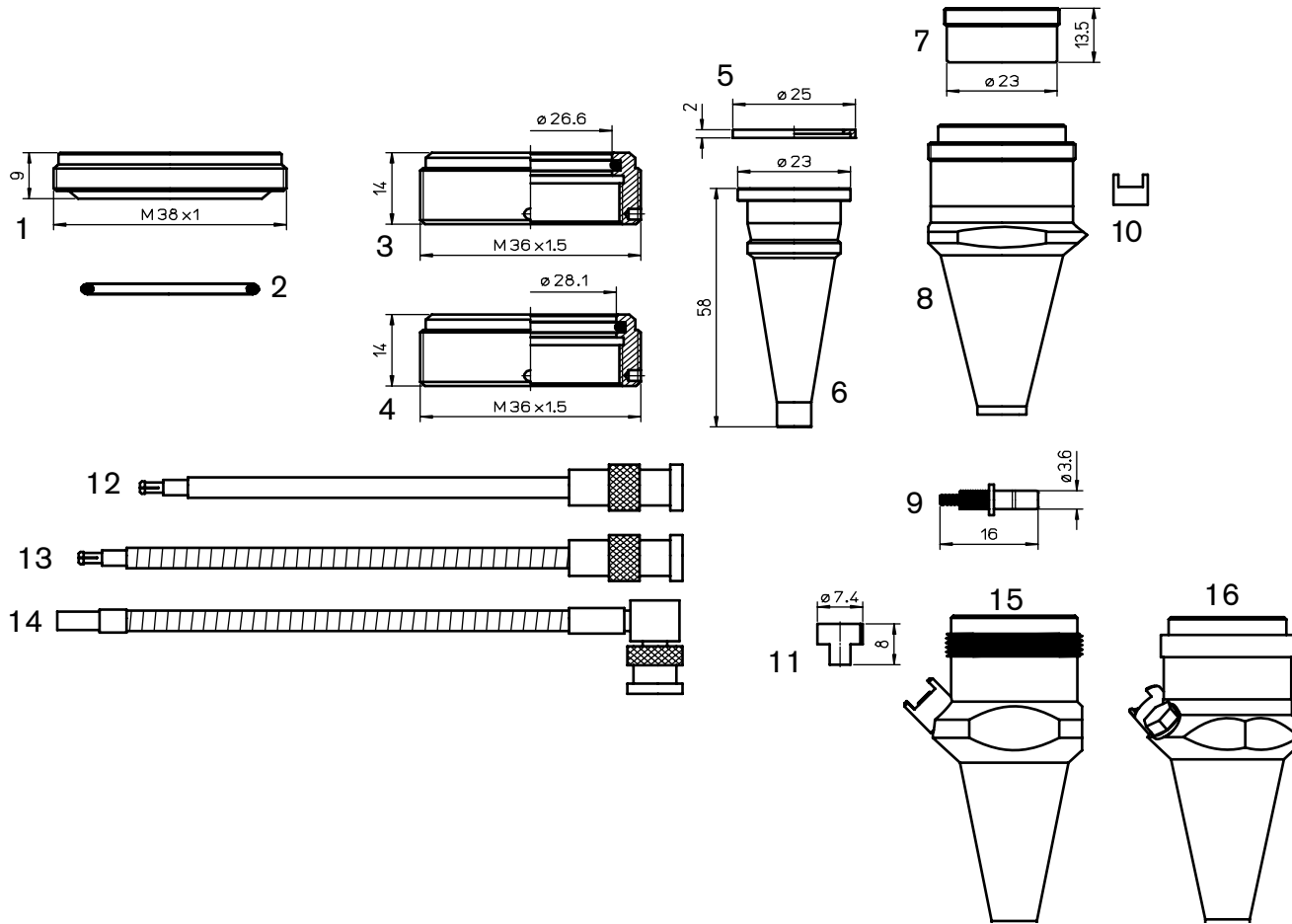
\*Available in single packs. To order single packs, remove the 'X' at the end of the part number (e.g. AM123-4567X would be AM123-4567)



### Consumables

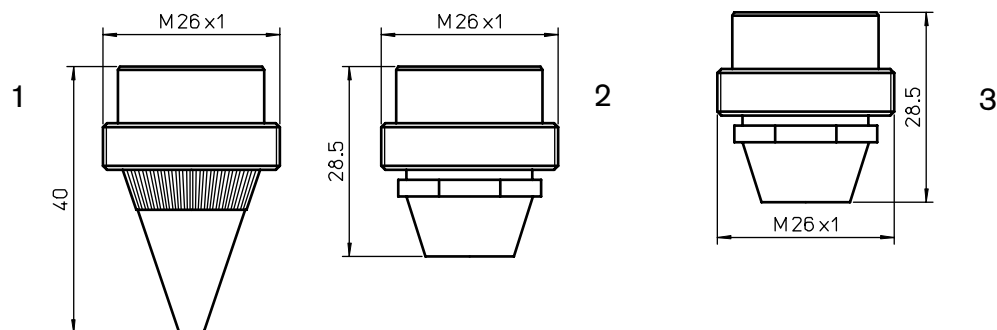
	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ332-1280	AL337	46713331280	MZ-Nut, Vespel	1
2	MZ332-1305	L1300		MZ-Nozzle 3D, 1.0 mm	1
	MZ332-1320	L1295	46713331320	MZ-Nozzle 3D, 1.2 mm	1
	MZ332-1310	L1296	46713331310	MZ-Nozzle 3D, 1.5 mm	1
	MZ332-1301	L1301		MZ-Nozzle 3D, 1.8 mm	1
	MZ332-1300	L1297	46713331300	MZ-Nozzle 3D, 2.0 mm	1
	MZ332-1330	L1298	46713331330	MZ-Nozzle 3D, 2.5 mm	1
	MZ332-1290	L1299	46713331290	MZ-Nozzle 3D, 3.0 mm	1
3	PT347-1034X	L30481	281034, P0352-324-00012	PT-Nozzle ZK, 1.2 mm (10 pk)	10
	PT347-1013X	L30482	281013, P0352-325-00015	PT-Nozzle ZK, 1.5 mm (10 pk)*	10
	PT347-0899X	L30483	280899, P0352-326-00018	PT-Nozzle ZK, 1.8 mm (10 pk)*	10
	PT347-0044X	L30484	350044.3, P0352-327-00020	PT-Nozzle ZK, 2.0 mm (10 pk)*	10
	PT347-1025X	L30485	350044.3, P0352-328-00025	PT-Nozzle ZK, 2.5 mm (10 pk)*	10
4	PT347-1006X	L30486	281006, P0352-333-00010	PT-Nozzle KK, 1.0 mm (10 pk)	10
	PT347-1030X	L30487	281030, P0352-334-00012	PT-Nozzle KK, 1.2 mm (10 pk)*	10
	PT347-1031X	L30488	281031, P0352-335-00015	PT-Nozzle KK, 1.5 mm (10 pk)*	10
	PT347-0898X	L30489	280898, P0352-336-00018	PT-Nozzle KK, 1.8 mm (10 pk)*	10
	PT347-1020X	L30490	P0352-336-00020	PT-Nozzle KK, 2.0 mm (10 pk)*	10

\*Available in single packs. To order single packs, remove the 'X' at the end of the part number (e.g. AM123-4567X would be AM123-4567)



## Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	PT347-4297	AL198	P0492-702-00001, 29100021	PT-Insulating ring outer body	1
2	AM326-6453	AL94	71366453	AM-O-ring for outer nozzle	1
3	PT347-0008	AL218	46713330200	PT-Isolating ring outer body (Precitec)	1
4	PT347-0920	AL221	46713330920	PT-Isolating ring outer body (Mazak)	1
5	PT347-350	AL350	46713330960	PT-Isolating ring, inner cone	1
6	PT347-349	AL349	46713330930	PT-Sensor cone inner	1
7	PT347-0940	AL353	46713330940	PT-Retaining ring	1
8	PT347-1240	AL351	46713331240	PT-Torch outer body	1
9	PT347-1111	AL354	46713331111	PT- Connector w/spring	1
10	PT347-9006		HNP-006	PT-Connector cup, HNP	1
11	PT347-0009	AL256	46713300390	PT-Connector protector	1
12	PT347-0101	AL204	P0360-100-00500, 46713300100	PT-Sensor head connecting cable OEM	1
13	PT347-1386	AL257	281386, P0360-155-00500	PT-Electrode cable	1
14	PT347-0181	AL358	46743300181	PT-Sensor cable	1
15	PT347-3323		567123323A1	PT-Sensor cone HNP	1
16	PT347-0011		P0354-110-00002	PT-Sensor cone HN2 (Mitsubishi)	1



### Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ323-0060-1.0	L61	46523300060	MZ-Nozzle, 1.0 mm	1
	MZ323-0061-1.5	L84	46523300061	MZ-Nozzle, 1.5 mm	1
	MZ323-0063-2.0	L51	46523300063	MZ-Nozzle, 2.0 mm	1
	MZ323-0063-2.5	L333	46523300063	MZ-Nozzle, 2.5 mm	1
2	MZ321-0510	AL11	46603350510	MZ-Nozzle adapter body	1
3	MZ321-0001	AL44		MZ-Nozzle adapter w/inner	1

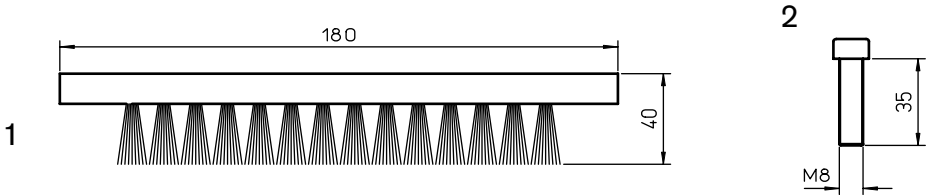


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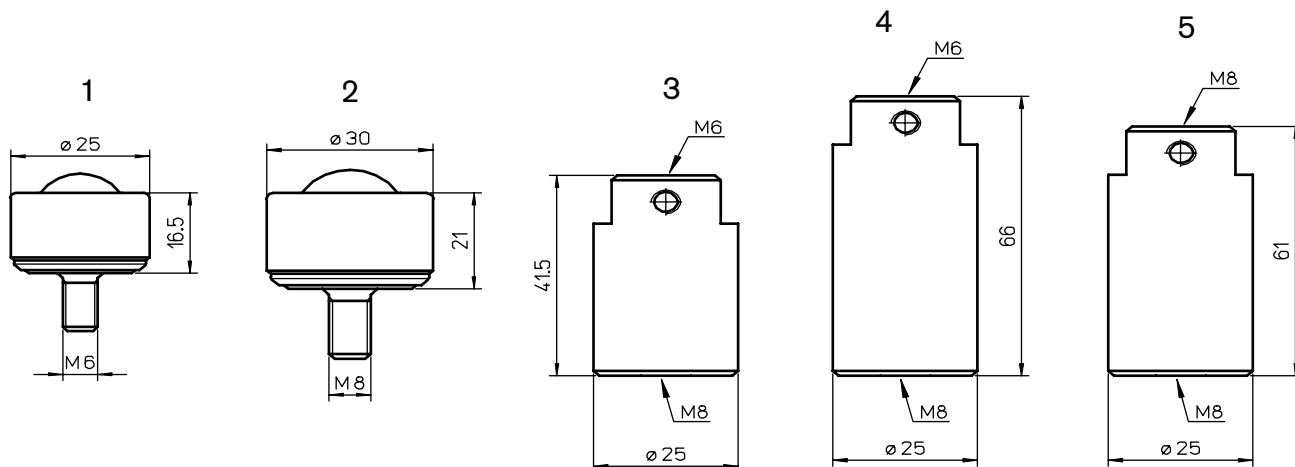
Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ335-1330A		46683301330	MZ-Sensor cable, 305 mm (12") armored	1
	MZ335-1980A		46683301980	MZ-Sensor cable, 280 mm (11") armored	1
	MZ335-0111A (not shown)		46743300111	MZ-Sensor cable, 280 mm (11") armored	1
	MZ335-0181A (not shown)		46743300181	MZ-Sensor cable, 317.5 mm (12.5") armored	1
	MZ335-5320 (not shown)		6143355320	MZ-Sensor cable, 70 mm (2.8") armored	1
	MZ335-630A (not shown)			MZ-Sensor cable, 630 mm (25") armored	1
	MZ335-HNPS (not shown)		HNPS	MZ-Sensor cone, HNP short version	1



Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ427-0006	AL301		MZ-Brush w/screws, 180x30x20	1
2	BY328-3884		333884	BY-Screws, plastic (2 pcs)	2
	AM313-2023 (not shown)		71232023	AM-Vacuum pump filter	1



### Consumables

	Centricut part number	Esse A part number	Reference number	Description	Pkg qty
1	MZ309-Z580	AL61	Z21KV000580	MZ-Roller ball M6, 25 mm	1
	MZ309-Z580X	AL3061	Z21KV000580	MZ-Roller ball M6, 25 mm (10 pk)	10
	MZ309-Z580B	AL325	Z21KV000580	MZ-Roller ball M6, 25 mm	1
2	MZ309-1160	AL210	Z21ZZ001160	MZ-Roller ball M8, 30 mm	1
3	MZ309-0321	AL62	46575100321	MZ-Block, L41.5 stainless steel	1
4	MZ309-0050	AL134	46705100050	MZ-Block, L66 stainless steel	1
5	MZ309-0324	AL324		MZ-Block, stainless steel	1

## Optics

Centricut part number	Reference number	Type	Diameter	Focal length	Edge thickness
<b>Lenses</b>					
MZ315-0130	Z50MB000130	PLX	1.5"	5.0"	.118"
MZ315-0160	Z50MB000160	PLX	1.5"	5.0"	.236"
MZ315-0400	Z50MB000400	PLX	1.5"	5.0"	.300"
MZ315-2155	702155	PLX	1.5"	9.5"	.1575"
MZ315-5980	145980	PLX	2.0"	5.0"	.300"
MZ315-5160	Z50ZZ005160	PLX	2.0"	5.0"	.310"
MZ315-0516A	Z50ZZ005160A	PLX	2.0"	5.0"	.380"
MZ315-0520A	Z50ZZ00520A	PLX	2.0"	7.5"	.380"
MZ315-0480	Z50ZZ010480	PLX	2.0"	12"	.236"
MZ315-8148	938148	PLX	2.5"	7.5"	.380"
<b>Ultra low absorption lenses</b>					
MZ315-0160MP5	Z50MB000160	PLX	1.5"	5.0"	.236"
MZ315-0400MP5	Z50MB000400	PLX	1.5"	5.0"	.300"
MZ315-0520AMP5	Z50ZZ00520A	PLX	2.0"	7.5"	.380"

Centricut part number	Reference number	Type	Diameter	Edge thickness
<b>Windows</b>				
MZ315-5350	Z50SA015350, W495	FS	42.00 mm	9.00 mm
PT317-0589 New		FS	22.35 mm	4.00 mm
PT317-0501 New	9263K501 Window O-ring for PT317-0589			

## Optics care

Centricut part number	Reference number	Description	Pkg qty
TR300-6452		Lens cleaning Tiffen paper (50 pcs)	1
TR300-1115		Lens cleaning pre-cut cotton (100 pcs)	1
TR300-1010	AL1010	Dropper, lens cleaning fluid	1
TR300-1112		Optical cleaning fluid	1
TR300-0699	70675699 REVA	Lens cleaning swabs (25 pcs)	1
TR300-7991	27991	Polyester wipes 4" x 4" (100 pcs)	1
TR301-0282		Injector	1
TR300-LSA		Lens stress analyzer	1
TR300-255	AL255	Magnifying loop	1
TR300-271	AL271	Base, mirror maintenance	1
TR300-7388	787388	Mirror polish .1UM 250ML	1
MZ427-0230		MZ-Wire, Indium 0.030" x 6'	1



# Sensor cones



**Centricut sensor cones provide substantial cost savings  
without sacrificing performance or quality**

- Available for Amada, Mazak, Mitsubishi and Precitec
- Delivers the same OEM performance at a lower cost
- Unmatched performance and reliability
- Engineered and manufactured to Hypertherm's precise quality standards
- Backed by our one-year warranty and 100% satisfaction guarantee

Centricut part number	OEM	Reference number	Description
AM343-0091	Amada	71360091	AM-Sensor cone, HS95 mini
AM343-1621	Amada	71341621	AM-Sensor cone, HS95
AM343-9107	Amada	ECO cone	AM-Sensor cone, ECO
AM343-1690	Amada	71341690	AM-Sensor cone, HS98
AM343-L3015C	Amada	71374509	AM-Sensor cone, LC3015
PT347-3323	Mazak	HNP	PT-Sensor cone, HNP
MZ335-HNPS	Mazak	HNPS	MZ-Sensor cone, HNP short version
PT347-0007	Mazak	56743300500	PT-Sensor cone, HNZ (Mazak)
PT347-0011	Mitsubishi	P0354-110-00002	PT-Sensor cone, HNZ (Mitsubishi)
MB334-W429A	Mitsubishi	P0461-270-00001	MB-Sensor cone, W429A
PT347-0238	Precitec	BQ930D238G01	PT-Sensor cone, HNZ SMA
PT347-8001	Precitec	P0361-203-00001	PT-Sensor cone, 2.5/J
PT347-0522	Precitec	P0599-520-00002	PT-Sensor cone, LRC
PT347-1145	Precitec	P0380-140-0002, P0380-130-00001, 281145	PT-Sensor cone, DZ

\*Sensor cone repair service is available for most sensor cones in North America and select international regions. For more information contact [Ctlaser@Hypertherm.com](mailto:Ctlaser@Hypertherm.com).

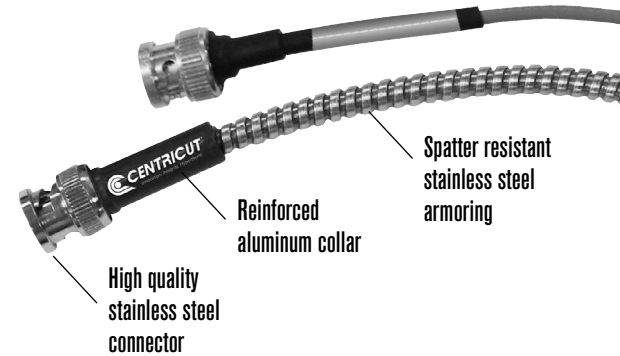
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# Armored sensor cables

## Centricut armored sensor cables outlast standard OEM cables

- Available for all major brands
- Robust design with extreme temperature rating (900–1200°)
- Longer life reduces downtime and production loss
- Spatter resistant stainless steel armoring
- Reinforced collars and high-quality connector



### Armored sensor cables

Centricut part number	OEM	Reference number	Description
AM308-8965	Amada	71398965	AM-Sensor cable, 305 mm (12")
AM308-8965A	Amada	71398965	AM-Sensor cable, 305 mm (12") premium, armored
AM313-1901	Amada		AM-Sensor cable, 305 mm (12")
AM313-1901A	Amada	71341630	AM-Sensor cable HS-5, 305 mm (12") premium, armored
AM313-8292	Amada	71398292	AM-Sensor cable dual shield, 7 meters
AM313-9851A	Amada	71369851	AM-Sensor cable, 230 mm (8") premium
CN306-0654A	Cincinnati	909654, 922686	CN-Sensor cable, 114 mm (4.5") armored
CN306-0951A	Cincinnati	842951	CN-Sensor cable, 140 mm (5.5") armored
CN306-2951	Cincinnati	842951, PLTTW0015	CN-Sensor cable, 140 mm (5.5")
CN306-9654	Cincinnati	909654, 922686, PLTTW0002	CN-Sensor cable, 114 mm (4.5") armored
MZ335-0111A	Mazak	4674330111	MZ-Sensor cable, 280 mm (11") armored
MZ335-0181A	Mazak	46743300181	MZ-Sensor cable, 317.5 mm (12.5") armored
MZ335-1330A	Mazak	46683301330	MZ-Sensor cable, 305 mm (12") armored
MZ335-1980A	Mazak	46683301980	MZ-Sensor cable, 280 mm (11") armored
MZ335-5320	Mazak	6143355320	MZ-Sensor cable, 70 mm (2.8") armored
MZ335-630A	Mazak	00BSBA630MNC	MZ-Sensor cable, 630 mm (25") armored
MZ335-8290	Mazak	46143308290	MZ-Sensor cable, 75 mm (3")
NT426-1682	NTC	4R029911-001, J482D	NT-Sensor cable, 216 mm (8.5")
NT426-4991	NTC	3-0104991	NT-Sensor cable 0-OBNC/MCX, 482 mm (19")
NT426-7492	NTC	3-0117492	NT-Sensor cable 90BNC/90BNC, 482 mm (19")
NT426-8677	NTC	4R028677-001	NT-Sensor cable, 508 mm (20") armored
PR361-3150	Prima	820.63.150	PR-Sensor cable, 150 mm (6")
PT347-0014	Precitec	P36015000300, KE 300 gw Z MM	PT-Sensor cable OEM
PT347-0015A	Precitec	00B-15	PT-Sensor cable, 380 mm (15")
PT347-0040	Precitec	00BB-A-17i, BEC004-000.4	PT-Sensor cable, 431 mm (17") armored
PT347-0101A	Precitec	P0360-100-00500	PT-Sensor cable, 500 mm (20") armored
PT347-0181	Precitec	46743300181	PT-Sensor cable
PT347-0250	Precitec	342475	PT-Sensor cable, 250 mm (10") armored
PT347-0300A	Precitec	P0492-014-00300	PT-Sensor cable KE, 300 mm (12") armored
PT347-0450	Precitec	P0497-002-00450	PT-Sensor cable, 450 mm (17.7")
PT347-KS13	Precitec/Gunkyo	00BMTKA-A-HS500mm	PT-Sensor cable, 390 mm (15.5") armored
PT347-0600OEM	Precitec	P0360-210-00600	PT-Sensor cable, 600 ZWW OEM
PT347-1250	Precitec	D5001-040-00250	PT-Sensor cable, 250 mm (10") armored
PT348-0390	Precitec		PT-Sensor cable, 390 mm (15.5")
TR301-0930	Trumpf	280930	TR-Sensor cable, 152 mm (6") armored
TR301-1086	Trumpf	351086, S0492-001-00000	TR-Sensor cable
TR301-7833	Trumpf	227833	TR-Sensor cable, 432 mm (17")
TR301-9983	Trumpf	359983, 342474	TR-Sensor cable, 190 mm (7.5") armored

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# Lens cleaning tips



### Centricut supplies suitable for all OEM CO<sub>2</sub> and fiber laser lenses

- Lens maintenance base is designed to secure a wide range of optics sizes for the cleaning process
- Centricut optical cleaning fluid is a safe, economical alternative to traditional high-purity and reagent-grade solvents
- Cleaning materials suited for all lens cleaning needs; lens paper, polyester swabs and polyester wipes

### Lens paper

Recommended for the routine maintenance cleaning of flat lenses.

### Polyester swabs

Recommended for cleaning curved lenses and where a more aggressive cleaning is required (interchangeable with polyester wipes).

### Polyester wipes

Recommended for cleaning CO<sub>2</sub> and fiber lenses and windows (interchangeable with polyester swabs and lens paper).

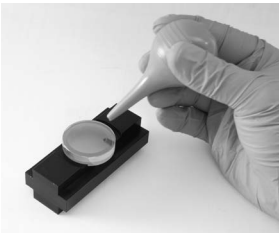
Product description	Part number	Quantity per order
Optical cleaning fluid (3 oz.)	TR300-1112	1
Lens cleaning swab	TR300-0699	25
Lens cleaning paper, Tiffen	TR300-6452	50
Polyester wipes 4" x 4"	TR300-7991	100
Base, lens maintenance	TR300-271	1

## Lens paper

Recommended for the routine maintenance cleaning of flat lenses.

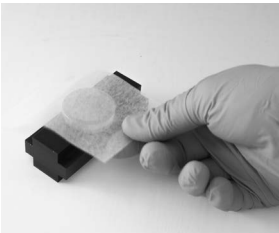
### You will need:

- Lens maintenance base (lens holder)
- Optical cleaning fluid
- Air bulb
- Lint-free lens paper
- Latex or rubber gloves



### To get started

Using rubber gloves, place the lens in the lens holder and remove all loose contaminants with an air bulb. When contaminants are no longer visible, begin the cleaning process.



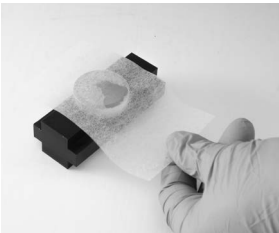
### Step 1

Place lens paper over the optic, covering it completely.



### Step 2

Apply a couple drops of lens cleaning fluid to the lens paper (far side of the lens).



### Step 3

Slowly pull the lens paper across the lens so the cleaning fluid comes in contact with the entire lens surface. Finish pulling the paper across so all of the fluid has dried from the lens.



### Step 4

Inspect the surface of the lens for dust and cleaning residue using a flashlight. Examine the lens from different angles. Repeat the process on the other side of the lens.

### Final step:

Place the cleaned lens in the machine quickly to avoid contamination from airborne particles. If spots, pits, or scratches are still noticeable, the lens may need to be replaced.

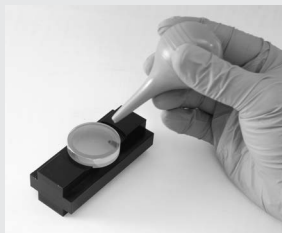
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## Polyester swabs

Recommended for cleaning curved lenses and where more aggressive cleaning is required. Interchangeable with polyester wipes.

### You will need:

- Lens maintenance base (lens holder)
- Optical cleaning fluid
- Air bulb
- Polyester swabs
- Latex or rubber gloves



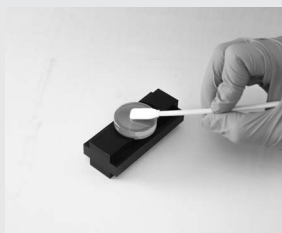
### To get started

Using rubber gloves, place the lens in the lens holder and remove all loose contaminants with an air bulb. When contaminants are no longer visible, begin the cleaning process.



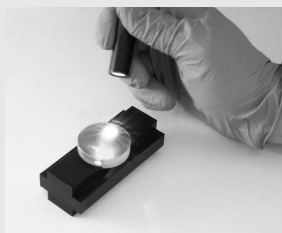
### Step 1

Place a few drops of the optical cleaning fluid onto the swab.



### Step 2

Move the larger dirt particles and then finer contaminants to the edge of the lens using the swab. Do not rest the swab on the lens or on the work table. Do not reuse swabs.



### Step 3

Inspect the surface of the lens for dust and cleaning residue using a flashlight. Examine the lens from different angles. Repeat the process on the other side of the lens.

### Final step:

Place the cleaned lens in the machine quickly to avoid contamination from airborne particles. If spots, pits, or scratches are still noticeable, the lens may need to be replaced.

## Polyester wipes

Recommended for cleaning CO<sub>2</sub> and fiber lenses and windows. Interchangeable with polyester swabs and lens paper.

### You will need:

- Lens maintenance base (lens holder)
- Optical cleaning fluid
- Air bulb
- Polyester wipes
- Latex or rubber gloves



### To get started

Using rubber gloves, place the lens in the lens holder and remove all loose contaminants with an air bulb. When contaminants are no longer visible, begin the cleaning process.



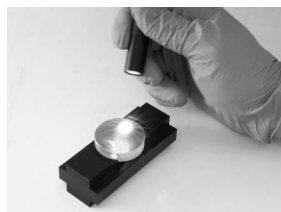
### Step 1

Place a few drops of the optical cleaning fluid onto the polyester wipe



### Step 2

Place the wipe with the wet side down on the lens and slide it across the lens, applying light pressure to the top of the wipe. Avoid contamination to the wipe and do not reuse wipes.



### Step 3

Inspect the surface of the lens for dust and cleaning residue using a flashlight. Examine the lens from different angles. Repeat the process on the other side of the lens.

### Final step:

Place the cleaned lens in the machine quickly to avoid contamination from airborne particles. If spots, pits, or scratches are still noticeable, the lens may need to be replaced.

# Steps to help optimize cut quality.

Striation marks, angularity and dross tell the story.

Optimizing CO<sub>2</sub> and fiber lasers to achieve maximum cut quality is a very important step in the overall cutting process. The critical points that produce good cuts are the width of the kerf (the material that is lost during the cut), oxidation and roughness of the cut surface, the geometry of the cut parts and the allowable tolerances. Some factors to be considered are the cut speed or 'feed rate', beam focus, gas pressure, standoff and nozzle size/type.

## Factory cut chart settings

The following samples show 12 mm, 6 mm and 3.2 mm (1/2", 1/4" and 10 ga.) mild steel, cut with O<sub>2</sub> on a 2 kW fiber laser with one variable changed to show how cut quality is affected. The adjustments will be similar for all CO<sub>2</sub> and fiber laser, cutting mild steel with O<sub>2</sub>.

### Is the kerf too narrow?

When the kerf is too narrow the cut will have a very smooth edge on the top, a lack of oxidation on the bottom and/or heavy dross.

#### Probable causes:

- Focus is too low
- Feed rate is too fast
- Gas pressure is too low
- Nozzle size is too small
- Standoff is too low

#### Follow these steps to optimize cut quality:

1. Use the closest known settings for the material being cut.
2. Use a test part that has both interior and exterior features.
3. Verify that the lens and/or window is clean and in good condition.
4. Verify that the nozzle is centered properly and is in good condition.
5. Adjust the focus up and down until the cut quality starts to get bad and then set to the middle of that range.
6. Adjust the gas pressure up and down until the cut starts to get bad and then set to the middle of that range.
7. Adjust the feed rate up by 5% increments. When the cut starts to get bad, set the feed rate 10% slower.

### Strike a balance between heat levels and gas flow

Cutting mild steel with a laser is a balance of how much material is heated by the laser beam and how much assist gas flows through the cut.

- Heating up too small of an area, or not having enough assist gas flow through the cut will result with the kerf (width of the cut) being too narrow.
- Heating up too large of an area or having too much assist gas flow through the cut will result in the kerf being too wide.

### Is the kerf too wide?

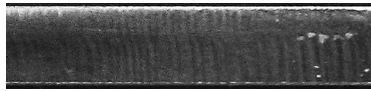
When the kerf is too wide the cut will have a rougher edge, more self burning in the corners of the part, more angularity on the cut edge and occasionally, dross.

#### Probable causes:

- Focus is too high
- Feed rate is too slow
- Gas pressure is too high
- Nozzle size is too big
- Standoff is too high
- Incorrect nozzle type

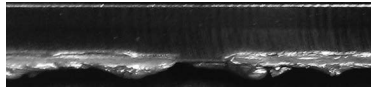
## 3.2 mm (10 ga.) mild steel cut resulting in too narrow kerf

### Factory cut chart settings



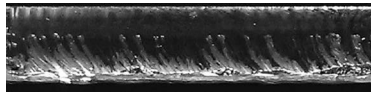
### Focus is too low

The kerf is too narrow and doesn't allow enough O<sub>2</sub> into the cut to remove all the molten material.



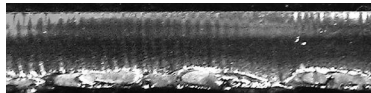
### Feed rate is too fast

The cut striations are trailing the direction of cutting and there is not enough time to remove all the molten material.



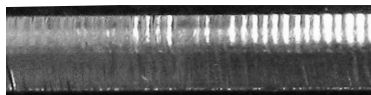
### Gas pressure is too low

There is not enough O<sub>2</sub> to remove all the molten material.



### Stand off is too low

The focus spot is in the wrong location, causing the rough edge.



Cut direction

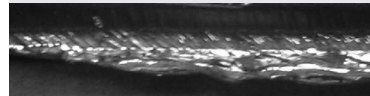
## 3.2 mm (10 ga.) mild steel cut resulting in too wide kerf

### Factory cut chart settings



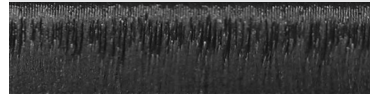
### Focus is too high

The laser is melting more material than can be removed from the cut.



### Feed rate is too slow

The cut surface is too rough and productivity is decreased.



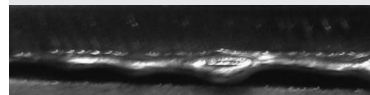
### Gas pressure is too high

Too much O<sub>2</sub> results in overheating of the cut and causes intermittent gouges.



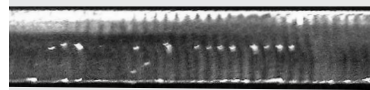
### Stand off is too high

The laser is melting more material than can be removed from the cut.



### Nozzle size is too big

Too much O<sub>2</sub> results in overheating of the cut and causes intermittent gouges.



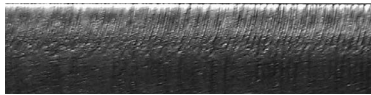
Cut direction

\*Above samples have been cut with O<sub>2</sub> on 2 kW fiber laser. Results will be similar for CO<sub>2</sub> laser cutting mild steel with O<sub>2</sub>.



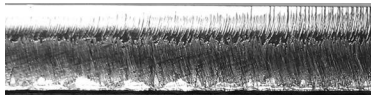
## 6 mm (1/4") mild steel cut resulting in too narrow kerf

Factory cut chart settings



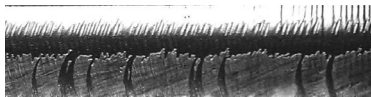
**Focus is too low**

The kerf is too narrow and doesn't allow enough O<sub>2</sub> into the cut to remove all the molten material.



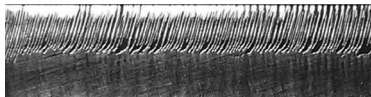
**Feed rate is too fast**

The cut striations are trailing the direction of cutting and there is not enough time to remove all the molten material.



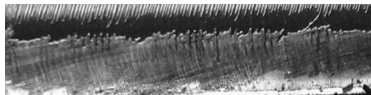
**Gas pressure is too low**

There is not enough O<sub>2</sub> to remove all the molten material.



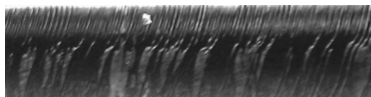
**Stand off is too low**

The focus spot is in the wrong location, causing the rough edge.



**Nozzle size is too small**

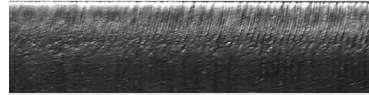
There is not enough O<sub>2</sub> to cut uniformly



**Cut direction**

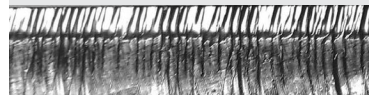
## 6 mm (1/4") mild steel cut resulting in too wide kerf

Factory cut chart settings



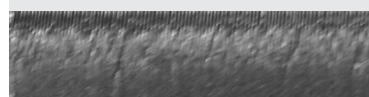
**Focus is too high**

The wider focus spot is letting too much O<sub>2</sub> into the cut and burning the material.



**Feed rate is too slow**

The cut surface is too rough and productivity is decreased.



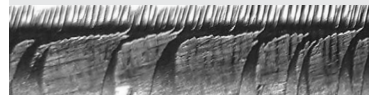
**Gas pressure is too high**

Too much O<sub>2</sub> is entering the cut, causing a rougher edge and inconsistent cutting.



**Stand off is too high**

Too much O<sub>2</sub> is entering the cut, causing a rougher edge and inconsistent cutting.



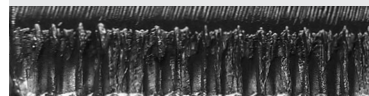
**Nozzle size is too big**

Too much O<sub>2</sub> results in overheating of the cut and causes intermittent gouges.



**Nozzle type is incorrect**

The shape of the gas flow is incorrect, causing a rougher edge.



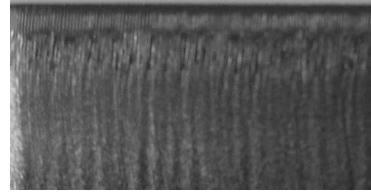
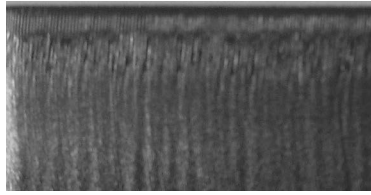
**Cut direction**

\*Above samples have been cut with O<sub>2</sub> on 2 kW fiber laser. Results will be similar for CO<sub>2</sub> laser cutting mild steel with O<sub>2</sub>.

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## 12 mm (1/2") mild steel cut resulting in too narrow kerf

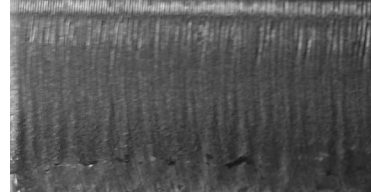
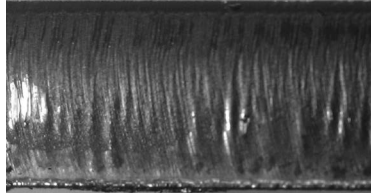
### Factory cut chart settings



### Factory cut chart settings

### Focus is too low

The kerf is too narrow and doesn't allow enough  $O_2$  into the cut to remove all the molten material.

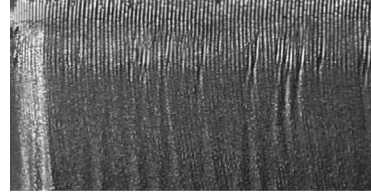
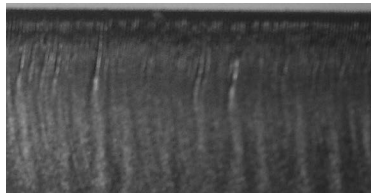


### Stand off is too low

The kerf is too narrow to allow enough  $O_2$  into the cut. The oxidation is not covering the entire surface and cutting will be inconsistent.

### Feed rate is too fast

The machine is moving too fast to allow enough  $O_2$  into the cut for consistent cutting.



### Nozzle size is too small

There is not enough  $O_2$  to cut uniformly

### Gas pressure is too low

The pressure is too low to allow enough  $O_2$  into the cut. The oxidation is not covering the entire surface and cutting will be inconsistent.



Cut direction

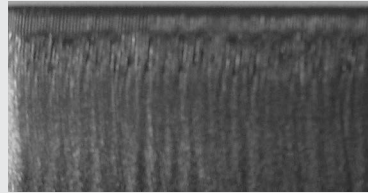
Cut direction

\*Above samples have been cut with  $O_2$  on 2 kW fiber laser. Results will be similar for  $CO_2$  laser cutting mild steel with  $O_2$ .

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## 12 mm (1/2") mild steel cut resulting in too wide kerf

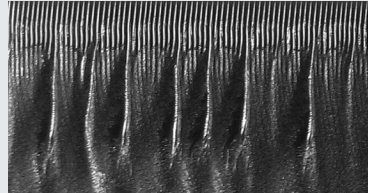
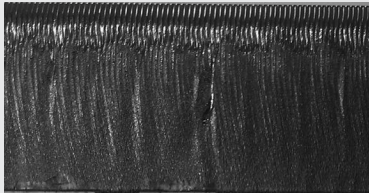
### Factory cut chart settings



### Factory cut chart settings

### Focus is too high

Too much O<sub>2</sub> is entering the cut causing intermittent over burning.

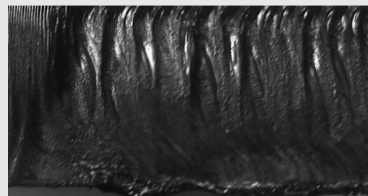
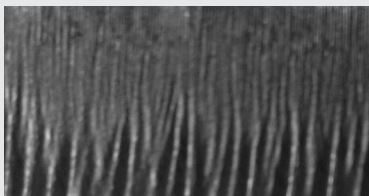


### Stand off is too high

Too much O<sub>2</sub> is entering the cut resulting in intermittent over burning.

### Feed rate is too slow

The machine is moving too slow resulting in the over burning of the bottom half of the cut. The slower feed rate also reduces productivity.

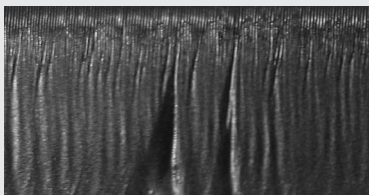


### Incorrect nozzle type

The gas flow shape is not correct resulting in inconsistent cutting.

### Gas pressure is too high

Too much O<sub>2</sub> is entering the cut resulting in intermittent over burning.



Cut direction

Cut direction

\*Above samples have been cut with O<sub>2</sub> on 2 kW fiber laser. Results will be similar for CO<sub>2</sub> laser cutting mild steel with O<sub>2</sub>.

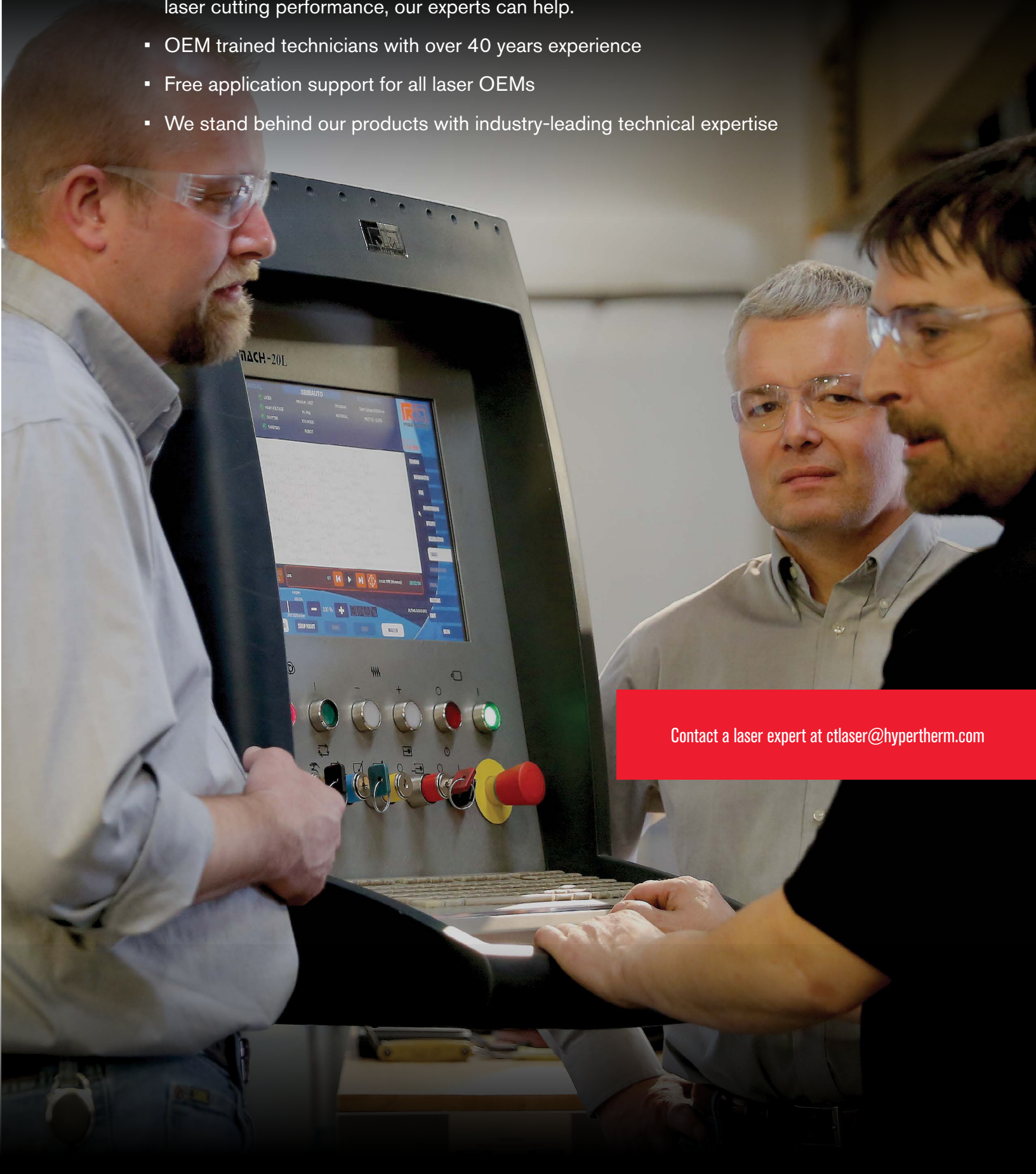
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