

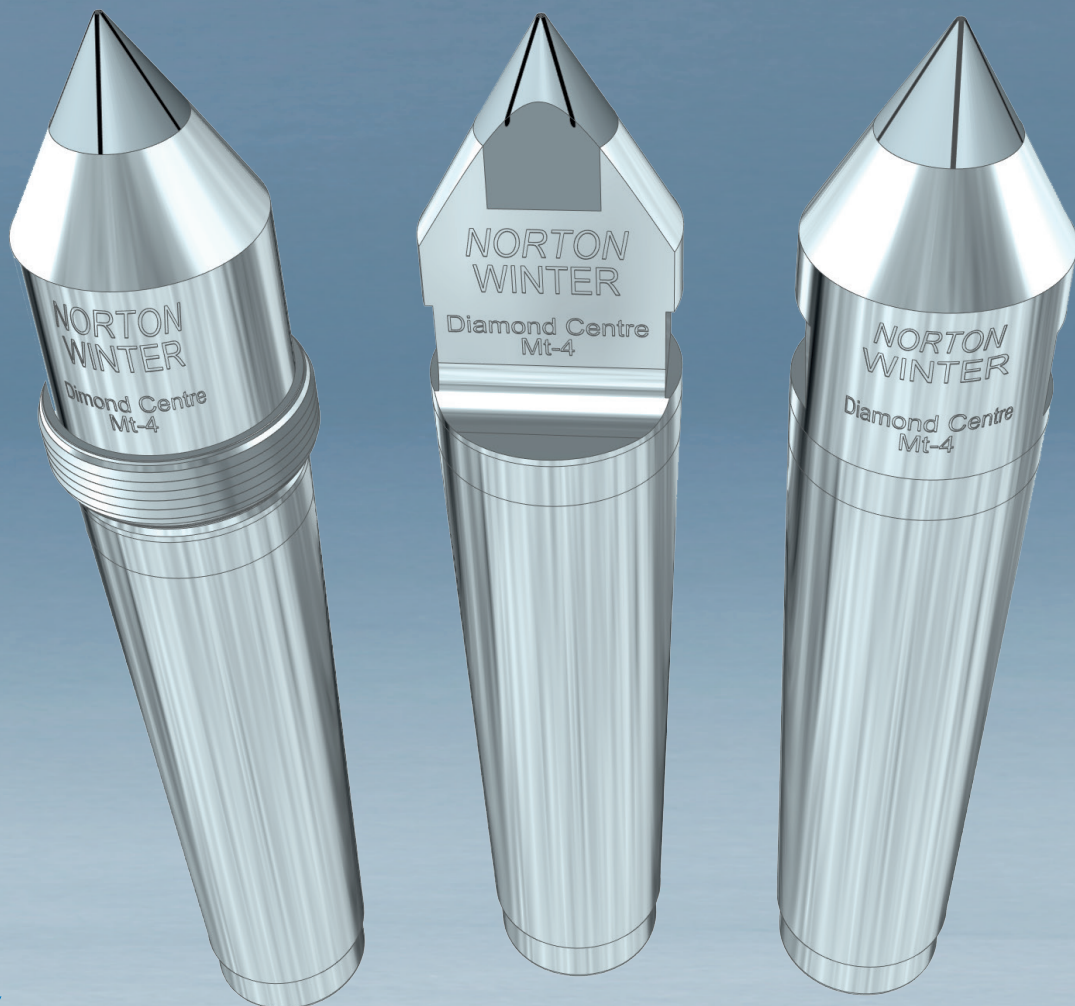


WINTER



PRECISION ENGINEERING SOLUTIONS

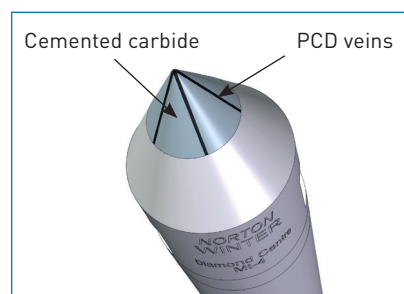
DIAMOND CENTRES



ADVANCED MATERIALS

Dead centres are required when machining cylindrical workpieces to the highest level of geometrical tolerances. A live (rotating) centre will not achieve the right tolerance because of the dynamics and bearings involved.

Norton Winter has developed a range of diamond centres to deliver optimal results in these operations. The diamond centres have the perfect combination of advanced materials; cemented carbide alongside with polycrystalline diamond, PCD. The cemented carbide offers strength and toughness while the five veins of PCD add the hardness, low friction and thermal capacity of diamond material.



PHYSICAL PROPERTIES OF DIAMOND

Diamond is the hardest material on this planet and has very high thermal conductivity with very low friction. These three properties mean diamond centres achieve outstanding performance when used to machine components, particularly when high production volumes and the very best quality are demanded.

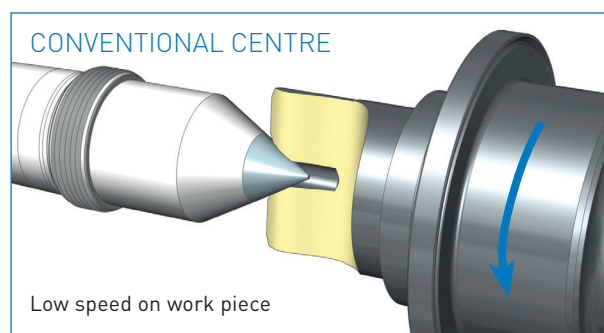
IMPROVE PRODUCTIVITY AND QUALITY

The polycrystalline diamond, PCD, is a solid, thick material with numerous grains of diamond connected in a metal matrix that is seamlessly joined on to the cemented carbide. The join is extremely robust and durable, preventing avoid downtime when machining workpieces and ensuring the highest quality.

PROPERTIES	UNITS	SUPER ABRASIVES			CEMENTED CARBIDE	CERAMIC	STEEL
		Monocrystalline Diamond	Polycrystalline Diamond (PCD)	PCBN	6% Co	Si3N4 Hot-Press	4340
Hardness	Knoop Kg/mm ²	7000-13000	5000-8000	2700-3200	-	-	-
	Vickers Kg/mm ²	-	-	2600-3500	1600	2200	528
Friction	-	0,05-0,10	0,08-0,15	0,10-0,15	0,20	0,20	0,78
Thermal Conductivity	W/mK	600-2100	150-550	100-200	95	29	48

Source: Sandvik 1999

HIGHER WORKPIECE RPM FOR HIGHER PRODUCTIVITY

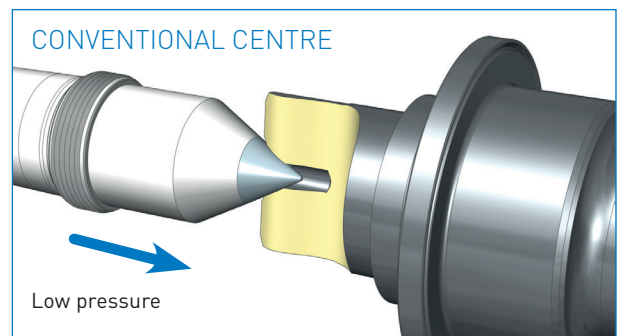
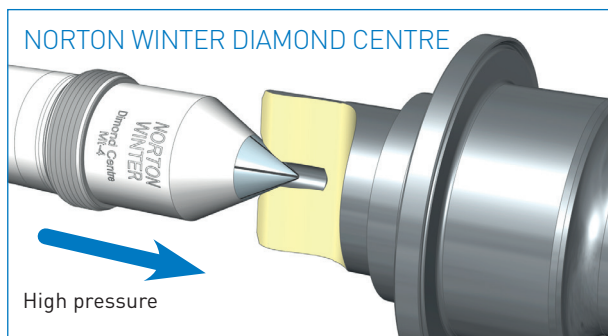


Workpiece speed is an important factor for the cylindrical grinding process. It affects the roundness of the piece, as well as productivity. Carbide centres can often limit the possibility of working at high speeds on the workpiece because of overheating and rapid wear.

Thanks to the low friction and good thermal conductivity of diamond centres, they can work at these higher speeds, achieving more revolutions of the workpiece during the grinding cycle. Taking the same grinding allowance at many more revolutions is key to achieving better roundness, and in many cases, a shorter cycle time.

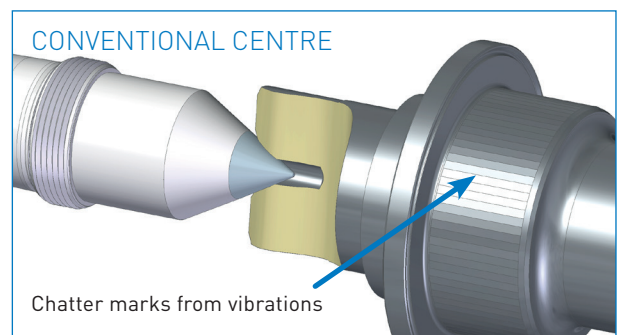
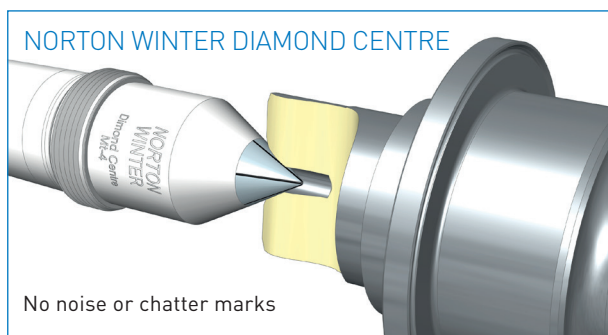
In addition, as the diamond material has very good wear resistance, it will need fewer corrections, which will increase quality over time.

HIGHER PRESSURE FOR HIGHER QUALITY



Diamond centres allow higher pressure to be applied on the centre point thanks to their properties of low friction and low wear. This higher pressure can achieve greater quality on the workpiece.

LOW FRICTION FOR HIGHER QUALITY



The low friction of diamond centres reduces the risk of vibrations and noise, which can affect the quality of the workpiece. For example, high levels of vibration can cause chatter marks; this is eliminated when using diamond centres.

SPECIFICATIONS

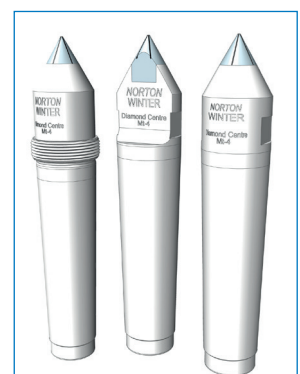
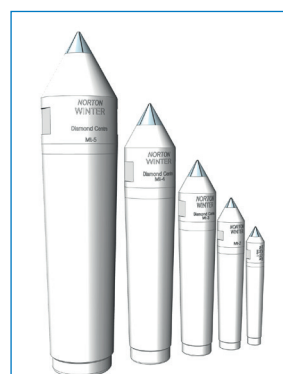
The Norton Winter standard range of diamond centres conforms to DIN standard. Our standard size range is Morse taper no. 1 to no. 5.

DIMENSIONS

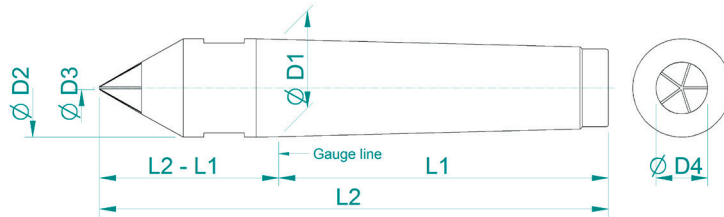
Norton Winter Diamond centres are made to standard dimensions and can easily replace your existing centre.

Full centre Conforms to DIN 806 centers
Half centre Conforms to DIN 806H centers
With thread for extractor nut Conforms to DIN 807 centers

All versions in sizes Morse Taper Mt-1, Mt-2, Mt-3, Mt-4, Mt-5.



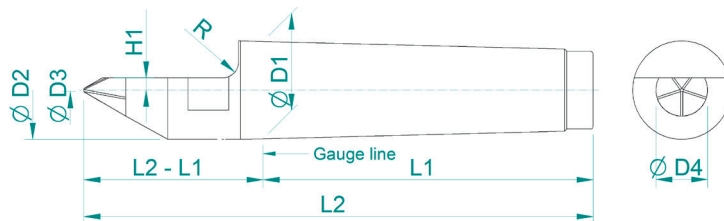
DIMENSIONS - FULL CENTRE



Conforms to DIN 806

PRODUCT CODE	SIZE	Ø D1	Ø D2	Ø D3	Ø D4	THREAD	L2	L2-L1	H1	R
66260174807	Mt-1	12,065	12,2	0,5	7,9	-	80	26,5	-	-
66260174812	Mt-2	17,78	18	0,8	12,7	-	100	36	-	-
66260174813	Mt-3	23,825	24,1	0,8	14,3	-	125	44	-	-
66260174814	Mt-4	31,267	31,6	1	16,5	-	160	57,5	-	-
66260174816	Mt-5	44,399	44,7	1,6	16,5	-	200	70,5	-	-

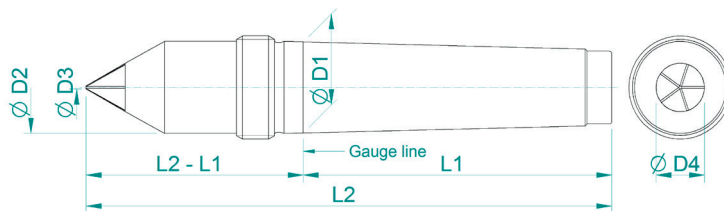
DIMENSIONS - HALF CENTRE



Conforms to DIN 806H

PRODUCT CODE	SIZE	Ø D1	Ø D2	Ø D3	Ø D4	THREAD	L2	L2-L1	H1	R
66260174817	Mt-1	12,065	12,2	0,5	7,9	-	80	26,5	1,5	2,5
66260174818	Mt-2	17,78	18	0,8	12,7	-	100	36	2	4
66260174821	Mt-3	23,825	24,1	0,8	14,3	-	125	44	3	4
66260174822	Mt-4	31,267	31,6	1	16,5	-	160	57,5	5	6
66260174823	Mt-5	44,399	44,7	1,6	16,5	-	200	70,5	7	6

DIMENSIONS - FULL CENTRE WITH THREAD

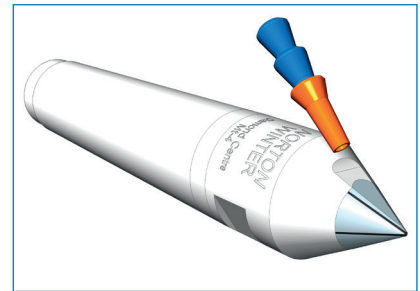


Conforms to DIN 807

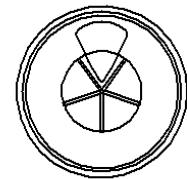
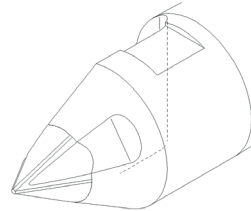
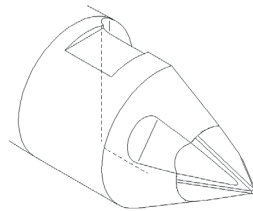
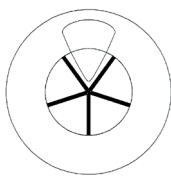
PRODUCT CODE	SIZE	Ø D1	Ø D2	Ø D3	Ø D4	THREAD	L2	L2-L1	H1	R
66060174824	Mt-1	12,065	12,2	0,5	7,9	M16x1,5	90	36,5	-	-
66260174825	Mt-2	17,78	18	0,8	12,7	M22x1,5	112	48	-	-
66260174826	Mt-3	23,825	24,1	0,8	14,3	M27x1,5	138	57	-	-
66260174827	Mt-4	31,267	31,6	1	16,5	M36x1,5	175	72,5	-	-
66260174828	Mt-5	44,399	44,7	1,6	16,5	M48x1,5	217	87,5	-	-

OPTIONS AND CUSTOMISATION – STANDARD CENTRE POINTS

The standard option coolant inlet is highly recommended for long process times and heavy operations. The flat area between two diamond veins makes it possible to flush coolant emulsion into the centre hole to reduce both temperature and friction. To order the coolant inlet option, add a position for the product code to the table below.



FULL CENTRE	HALF CENTRE - Left side	HALF CENTRE - Right side	FULL CENTRE - with thread
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SIZE	PRODUCT CODE			
Mt-1	66260180483	66260180488	66260180494	66260180499
Mt-2	66260180484	66260180489	66260180495	66260180501
Mt-3	66260180485	66260180490	66260180496	66260180502
Mt-4	66260180486	66260180492	66260180497	66260180503
Mt-5	66260180487	66260180493	66260180498	66260180504

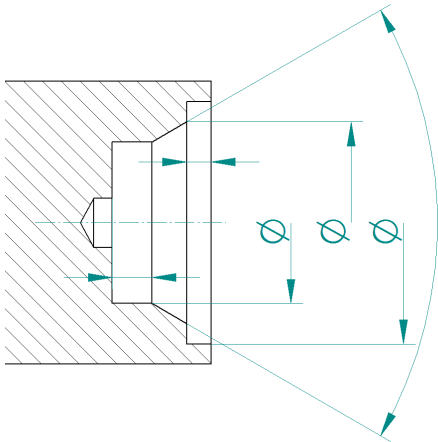
Order the coolant inlet option at the same time as you order the diamond centre. Example: I hereby order diamond centre 66260174814 with coolant inlet option 66260180486.

CUSTOMISATION

Non-standard changes to the standard centres can be made upon request. Send your request with a sketch or drawing to your Saint-Gobain sales representative.

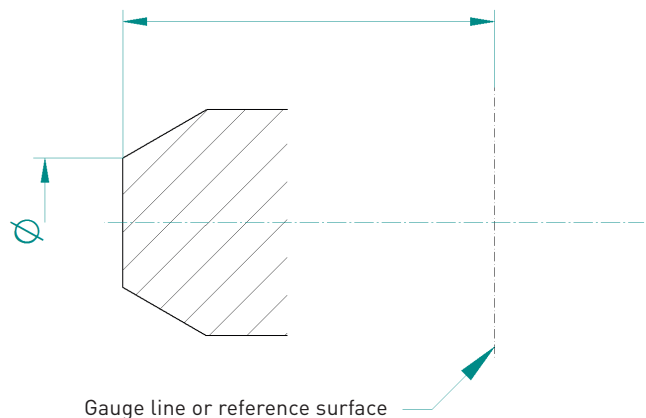


OPTIONS AND CUSTOMISATION – INFORMATION REQUIRED FOR CUSTOMISED CENTRES



Information for the centre hole:

Drawing
Sketch



Information for the holder:

Drawing
Sketch

EXAMPLES OF CUSTOM-MADE CENTRES

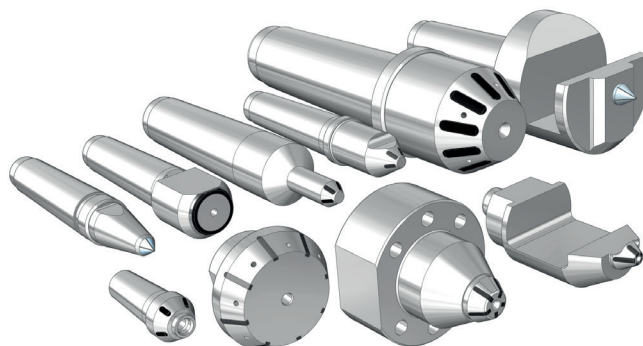
CUSTOMISATION

Fully customised diamond centres can be produced according to your drawing or sketch. If you need a larger diameter than on our standard diamond centres, we have a solution for that with brazed strips of PCD. This brazed solution has a limitation when it comes to the small diameter of the center. On a 60° centre, the diamond range is:

- Ø 7 and up with 4 strips
- Ø 8 and up with 5 strips
- Ø 9 and up with 6 strips



When making your inquiry for a fully customised diamond centre, please send information on both the centre hole and the centre tool.




SAINT-GOBAIN

Saint-Gobain Diamantwerkzeuge
GmbH & Co. KG
Schützenwall 13-17
D-22844 Norderstedt
Germany

Tel: +49 (0) 40 5258-0
Fax: +49 (0) 40 5258-383

www.nortonabrasives.com

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WINTER ist eine eingetragene Marke von Saint-Gobain
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