

Machining Values for High Performance Reamers MR

	Material	Application data	ø [mm]				Cutting material
			8.00-9.70	9.70-16.00	16.00-30.00	30.00-40.00	
			z = 4	z = 6	z = 6	z = 8	
P₁	Steel < 700 N/mm ²	vc [m/min.]	150				Cermet
		f [mm/rev.]	0.40	1.00	1.50	2.00	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
P₂	Steel 700-900 N/mm ²	vc [m/min.]	120				Cermet
		f [mm/rev.]	0.40	1.00	1.50	2.00	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
P₃	Steel 900-1,200 N/mm ²	vc [m/min.]	130				Carbide + BSP-Coating
		f [mm/rev.]	0.40	1.00	1.50	2.00	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
M₁	Stainless and corrosion-resistant steels < 700 N/mm ² *	vc [m/min.]	40				Carbide + Coating
		f [mm/rev.]	0.30	0.40	0.50	1.20	
		Allowance a [mm]	0.10	0.20	0.20	0.30	
M₂	Stainless and corrosion-resistant steels > 700 N/mm ² *	vc [m/min.]	30				Carbide + Coating
		f [mm/rev.]	0.30	0.40	0.50	1.20	
		Allowance a [mm]	0.10	0.20	0.20	0.30	
K₁	Grey cast iron (GG)	vc [m/min.]	110				Carbide + BSP-Coating
		f [mm/rev.]	0.60	1.50	1.80	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
K₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	120				Cermet
		f [mm/rev.]	0.60	1.50	1.80	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
K₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	90				Carbide + BSP-Coating
		f [mm/rev.]	0.60	1.50	1.80	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
N₁	Cu-/Zn-/Mg-alloys	vc [m/min.]	50				Carbide
		f [mm/rev.]	0.20	0.40	0.50	0.60	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
N₂	Aluminium alloys (Si < 7 %)	vc [m/min.]	50				Carbide
		f [mm/rev.]	0.20	0.40	0.50	0.60	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
N₃	Aluminium alloys (Si > 7 %)	vc [m/min.]	30				Carbide
		f [mm/rev.]	0.20	0.40	0.50	0.60	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
N₄	Plastics	vc [m/min.]	40				Carbide
		f [mm/rev.]	0.25	0.40	0.50	0.60	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
S	Titanium *	vc [m/min.]	15				Carbide + Coating
		f [mm/rev.]	0.06	0.20	0.25	0.30	
		Allowance a [mm]	0.10	0.15	0.20	0.20	
H	Hardened materials < 63 HRC*	vc [m/min.]	10				Carbide + Coating
		f [mm/rev.]	0.06	0.15	0.20	0.25	
		Allowance a [mm]	0.10	0.15	0.20	0.20	

* With special blade geometry and coating.

Machining Values for High Performance Reamers RR

	Material	Application data	ø [mm]							Cutting material
			< 5.00 mm	5.00-6.20	6.20-8.00	8.00-12.00	12.00-16.00	16.00-30.00	30.00-40.00	
P ₁	Steel < 700 N/mm²	vc [m/min.]	140							Cermet
		f [mm/rev.]	0.10	0.15	0.40	0.60	0.80	1.00	1.40	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	
P ₂	Steel 700-900 N/mm²	vc [m/min.]	120							Cermet
		f [mm/rev.]	0.10	0.12	0.40	0.60	0.80	1.00	1.40	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	
P ₃	Steel 900-1,200 N/mm²	vc [m/min.]	90							Cermet
		f [mm/rev.]	0.10	0.12	0.40	0.60	0.80	1.00	1.40	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	
K ₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	120							Cermet
		f [mm/rev.]	0.20	0.40	0.50	0.70	1.20	1.60	2.00	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	
K ₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	90							Cermet
		f [mm/rev.]	0.20	0.40	0.50	0.70	1.20	1.60	2.00	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	

Machining Values for High Performance Reamers VR

	Material	Application data	ø [mm]							Cutting material
			10.00-11.75	11.76-13.75	13.76-17.75	17.76-21.75	21.76-24.75	24.76-30.25	30.26-40.00	
			z = 6	z = 8	z = 10	z = 12	z = 14	z = 16	z = 18	
P ₁	Steel < 700 N/mm²	vc [m/min.]	180 (fz = 0.08 – 0.13 mm)							Cermet
		f [mm/rev.]	0.60	0.80	1.00	1.10	1.20	1.40	1.50	
		Allowance a [mm]	0.10	0.20	0.20	0.20	0.20	0.20	0.20	
P ₂	Steel 700-900 N/mm²	vc [m/min.]	150 (fz = 0.08 – 0.13 mm)							Cermet
		f [mm/rev.]	0.60	0.80	1.00	1.10	1.20	1.40	1.50	
		Allowance a [mm]	0.10	0.20	0.20	0.20	0.20	0.20	0.20	
P ₃	Steel 900-1,200 N/mm²	vc [m/min.]	120 (fz = 0.08 – 0.13 mm)							Cermet
		f [mm/rev.]	0.60	0.80	1.00	1.10	1.20	1.40	1.50	
		Allowance a [mm]	0.10	0.20	0.20	0.20	0.20	0.20	0.20	
M ₁	Stainless and corrosion-resistant steels < 700 N/mm² *	vc [m/min.]	30 (fz = 0.05 – 0.10 mm)							Carbide + Coating
		f [mm/rev.]	0.40	0.50	0.60	0.70	0.80	1.00	1.10	
		Allowance a [mm]	0.10	0.10	0.15	0.20	0.20	0.20	0.20	
K ₁	Grey cast iron (GG)	vc [m/min.]	200 (fz = 0.20 – 0.50 mm)							CBN
		f [mm/rev.]	1.20	1.60	2.00	2.40	2.80	3.20	3.60	
		Allowance a [mm]	0.20	0.20	0.20	0.20	0.20	0.20	0.20	
K ₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	100 (fz = 0.15 – 0.25 mm)							Cermet
		f [mm/rev.]	1.00	1.30	1.50	1.80	2.10	2.40	2.70	
		Allowance a [mm]	0.10	0.20	0.20	0.20	0.20	0.20	0.20	
K ₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	90 (fz = 0.10 – 0.40 mm)							Carbide + Coating
		f [mm/rev.]	1.00	1.30	1.50	1.80	2.10	2.40	2.70	
		Allowance a [mm]	0.10	0.20	0.20	0.20	0.20	0.20	0.20	
N ₁	Cu-/Zn-/Mg-alloys	vc [m/min.]	60 (fz = 0.02 – 0.07 mm)							Carbide
		f [mm/rev.]	0.30	0.40	0.50	0.60	0.70	0.80	0.80	
		Allowance a [mm]	0.10	0.20	0.20	0.20	0.20	0.20	0.20	
N ₂	Aluminium alloys (Si < 7 %)	vc [m/min.]	250 (fz = 0.075 – 0.30 mm)							PCD
		f [mm/rev.]	1.60	2.00	2.20	2.50	3.00	3.20	3.50	
		Allowance a [mm]	0.20	0.20	0.20	0.20	0.20	0.20	0.20	
N ₃	Aluminium alloys (Si > 7 %)	vc [m/min.]	250 (fz = 0.075 – 0.30 mm)							PCD
		f [mm/rev.]	1.60	2.00	2.20	2.50	3.00	3.20	3.50	
		Allowance a [mm]	0.20	0.20	0.20	0.20	0.20	0.20	0.20	
H	Hardened materials < 63 HRC*	vc [m/min.]	80 (fz = 0.02 – 0.05 mm)							CBN
		f [mm/rev.]	0.10	0.16	0.20	0.24	0.28	0.32	0.36	
		Allowance a [mm]	0.10	0.10	0.10	0.10	0.10	0.10	0.10	

* With special blade geometry and coating.

Machining Values for HNC Solid Carbide Reamers (uncoated)

	Material	Application data	ø [mm]						Cutting material
			< 5.00 mm	5.00-6.20	6.20-8.00	8.00-12.00	12.00-16.00	16.00-20.00	
P ₁	Steel < 700 N/mm ²	vc [m/min.]	30						Solid carbide
		f [mm/rev.]	0.15	0.18	0.20	0.20	0.30	0.30	
		Allowance a [mm]	0.10	0.10	0.20	0.20	0.20	0.30	
P ₂	Steel 700-900 N/mm ²	vc [m/min.]	20						Solid carbide
		f [mm/rev.]	0.15	0.18	0.20	0.20	0.30	0.30	
		Allowance a [mm]	0.10	0.10	0.20	0.20	0.20	0.30	
P ₃	Steel 900-1,200 N/mm ²	vc [m/min.]	15						Solid carbide
		f [mm/rev.]	0.15	0.18	0.20	0.20	0.30	0.30	
		Allowance a [mm]	0.10	0.10	0.20	0.20	0.20	0.30	
K ₁	Grey cast iron (GG)	vc [m/min.]	30						Solid carbide
		f [mm/rev.]	0.15	0.18	0.20	0.20	0.25	0.30	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.20	0.30	
K ₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	20						Solid carbide
		f [mm/rev.]	0.15	0.18	0.20	0.20	0.25	0.30	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.20	0.30	
K ₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	20						Solid carbide
		f [mm/rev.]	0.15	0.18	0.20	0.20	0.25	0.30	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.20	0.30	
N ₁	Cu-/Zn-/Mg-alloys	vc [m/min.]	50						Solid carbide
		f [mm/rev.]	0.15	0.18	0.20	0.20	0.30	0.35	
		Allowance a [mm]	0.10	0.10	0.15	0.20	0.20	0.30	
N ₂	Aluminium alloys (Si < 7 %)	vc [m/min.]	50						Solid carbide
		f [mm/rev.]	0.15	0.15	0.15	0.20	0.20	0.30	
		Allowance a [mm]	0.15	0.15	0.20	0.20	0.20	0.30	
N ₃	Aluminium alloys (Si > 7 %)	vc [m/min.]	30						Solid carbide
		f [mm/rev.]	0.15	0.15	0.15	0.20	0.20	0.30	
		Allowance a [mm]	0.15	0.15	0.20	0.20	0.20	0.30	
N ₄	Plastics	vc [m/min.]	40						Solid carbide
		f [mm/rev.]	0.15	0.15	0.15	0.35	0.35	0.40	
		Allowance a [mm]	0.15	0.15	0.20	0.20	0.20	0.30	

Machining Values for High Performance Reamers HCS

	Material	Application data	ø [mm]							Cutting material
			< 5.00 mm	5.00-6.20	6.20-8.00	8.00-12.00	12.00-16.00	16.00-30.00	30.00-40.00	
P ₁	Steel < 700 N/mm ²	vc [m/min.]	140							Cermet
		f [mm/rev.]	0.10	0.15	0.40	0.60	0.80	1.00	1.40	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	
P ₂	Steel 700-900 N/mm ²	vc [m/min.]	120							Cermet
		f [mm/rev.]	0.10	0.12	0.40	0.60	0.80	1.00	1.40	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	
P ₃	Steel 900-1,200 N/mm ²	vc [m/min.]	90							Cermet
		f [mm/rev.]	0.10	0.12	0.40	0.60	0.80	1.00	1.40	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	
K ₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	120							Cermet
		f [mm/rev.]	0.20	0.40	0.50	0.70	1.20	1.60	2.00	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	
K ₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	90							Cermet
		f [mm/rev.]	0.20	0.40	0.50	0.70	1.20	1.60	2.00	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	0.30	

* With special blade geometry and coating.

Machining Values for HNC Solid Carbide Reamers (coated)

	Material	Application data	ø [mm]						Cutting material
			< 5.00 mm	5.00-6.20	6.20-8.00	8.00-12.00	12.00-16.00	16.00-20.00	
P₁	Steel < 700 N/mm ²	vc [m/min.]	180						Solid carbide + BSP-Coating
		f [mm/rev.]	0.20	0.30	0.50	0.80	1.10	1.50	
		Allowance a [mm]	0.10	0.10	0.10	0.15	0.20	0.20	
P₂	Steel 700-900 N/mm ²	vc [m/min.]	180						Solid carbide + BSP-Coating
		f [mm/rev.]	0.20	0.30	0.50	0.80	1.10	1.50	
		Allowance a [mm]	0.10	0.10	0.10	0.15	0.20	0.20	
P₃	Steel 900-1,200 N/mm ²	vc [m/min.]	140						Solid carbide + BSP-Coating
		f [mm/rev.]	0.20	0.30	0.50	0.80	1.10	1.50	
		Allowance a [mm]	0.10	0.10	0.10	0.15	0.20	0.20	
M₁	Stainless and corrosion-resistant steels < 700 N/mm ² *	vc [m/min.]	40						Solid carbide + BVA-Coating
		f [mm/rev.]	0.10	0.15	0.30	0.40	0.50	0.60	
		Allowance a [mm]	0.05	0.10	0.10	0.10	0.20	0.20	
M₂	Stainless and corrosion-resistant steels > 700 N/mm ² *	vc [m/min.]	30						Solid carbide + BVA-Coating
		f [mm/rev.]	0.10	0.15	0.30	0.40	0.50	0.60	
		Allowance a [mm]	0.05	0.10	0.10	0.10	0.20	0.20	
K₁	Grey cast iron (GG)	vc [m/min.]	110						Solid carbide + BSP-Coating
		f [mm/rev.]	0.30	0.40	0.60	1.00	1.30	1.80	
		Allowance a [mm]	0.10	0.10	0.15	0.20	0.20	0.30	
K₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	150						Solid carbide + BSP-Coating
		f [mm/rev.]	0.30	0.40	0.60	1.00	1.30	1.80	
		Allowance a [mm]	0.10	0.10	0.15	0.20	0.20	0.30	
K₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	90						Solid carbide + BSP-Coating
		f [mm/rev.]	0.30	0.40	0.60	1.00	1.30	1.80	
		Allowance a [mm]	0.10	0.10	0.15	0.20	0.20	0.30	
N₂	Aluminium alloys (Si < 7 %)	vc [m/min.]	250						Solid carbide + BAL-Coating
		f [mm/rev.]	0.50	0.60	0.80	1.30	1.50	1.80	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.30	0.30	
N₃	Aluminium alloys (Si > 7 %)	vc [m/min.]	250						Solid carbide + BAL-Coating
		f [mm/rev.]	0.50	0.60	0.80	1.30	1.50	1.80	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.30	0.30	
N₅	Plastics, reinforced	vc [m/min.]	100						Solid carbide + Diamond-Coating
		f [mm/rev.]	0.40	0.50	0.70	0.90	1.20	1.50	
		Allowance a [mm]	0.10	0.10	0.10	0.20	0.20	0.20	
S	Titanium *	vc [m/min.]	15						Solid carbide + BTi-Coating
		f [mm/rev.]	0.08	0.12	0.15	0.10	0.20	0.25	
		Allowance a [mm]	0.05	0.05	0.10	0.10	0.15	0.20	
H	Hardened materials < 63 HRC*	vc [m/min.]	10						Solid carbide + BHV-Coating
		f [mm/rev.]	0.06	0.10	0.12	0.12	0.18	0.18	
		Allowance a [mm]	0.05	0.05	0.05	0.10	0.10	0.20	

*With special blade geometry and coating.

Machining Values for Replaceable Reamers XR 01

	Material	Application data	ø [mm]				Cutting material
			8.00-9.70	9.70-16.00	16.00-30.00	30.00-40.00	
			z = 4	z = 6	z = 6	z = 8	
P ₁	Steel < 700 N/mm ²	vc [m/min.]	150				Cermet
		f [mm/rev.]	0.40	1.00	1.50	2.00	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
P ₂	Steel 700-900 N/mm ²	vc [m/min.]	120				Cermet
		f [mm/rev.]	0.40	1.00	1.50	2.00	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
P ₃	Steel 900-1,200 N/mm ²	vc [m/min.]	130				Carbide + BSP-Coating
		f [mm/rev.]	0.40	1.00	1.50	2.00	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
M ₁	Stainless and corrosion-resistant steels < 700 N/mm ² *	vc [m/min.]	40				Carbide + BVA-Coating
		f [mm/rev.]	0.30	0.40	0.50	1.20	
		Allowance a [mm]	0.10	0.20	0.20	0.30	
M ₂	Stainless and corrosion-resistant steels > 700 N/mm ² *	vc [m/min.]	30				Carbide + BVA-Coating
		f [mm/rev.]	0.30	0.40	0.50	1.20	
		Allowance a [mm]	0.10	0.20	0.20	0.30	
K ₁	Grey cast iron (GG)	vc [m/min.]	110				Carbide + Coating
		f [mm/rev.]	0.60	1.50	1.80	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
K ₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	120				Cermet
		f [mm/rev.]	0.60	1.50	1.80	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
K ₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	90				Carbide + Coating
		f [mm/rev.]	0.60	1.50	1.80	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
N ₁	Cu-/Zn-/Mg-alloys	vc [m/min.]	50				Carbide
		f [mm/rev.]	0.20	0.40	0.50	0.60	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
N ₂	Aluminium alloys (Si < 7 %)	vc [m/min.]	300				PCD
		f [mm/rev.]	0.60	1.80	2.00	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
N ₃	Aluminium alloys (Si > 7 %)	vc [m/min.]	300				PCD
		f [mm/rev.]	0.60	1.80	2.00	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
N ₄	Plastics	vc [m/min.]	40				Carbide
		f [mm/rev.]	0.25	0.40	0.50	0.60	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
S	Titanium *	vc [m/min.]	15				Carbide + Coating
		f [mm/rev.]	0.06	0.20	0.25	0.30	
		Allowance a [mm]	0.10	0.15	0.20	0.25	
H	Hardened materials < 63 HRC*	vc [m/min.]	10				Carbide + Coating
		f [mm/rev.]	0.06	0.15	0.20	0.25	
		Allowance a [mm]	0.10	0.15	0.20	0.20	

* With special blade geometry and coating.

Machining Values for Replaceable Reamers XR 06

	Material	Application data	ø [mm]				Cutting material
			8.00-12.00	12.00-16.00	16.00-30.00	30.00-40.00	
			z = 6	z = 6	z = 6	z = 8	
P₁	Steel < 700 N/mm ²	vc [m/min.]	160				Carbide + BSP-Coating
		f [mm/rev.]	0.70	1.00	1.50	2.00	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
P₂	Steel 700-900 N/mm ²	vc [m/min.]	160				Carbide + BSP-Coating
		f [mm/rev.]	0.70	1.00	1.50	2.00	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
P₃	Steel 900-1,200 N/mm ²	vc [m/min.]	130				Carbide + BSP-Coating
		f [mm/rev.]	0.70	1.00	1.50	2.00	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
M₁	Stainless and corrosion-resistant steels < 700 N/mm ² *	vc [m/min.]	40				Carbide + BVA-Coating
		f [mm/rev.]	0.40	0.40	0.50	1.50	
		Allowance a [mm]	0.15	0.15	0.20	0.25	
M₂	Stainless and corrosion-resistant steels > 700 N/mm ² *	vc [m/min.]	30				Carbide + BVA-Coating
		f [mm/rev.]	0.40	0.40	0.50	1.50	
		Allowance a [mm]	0.15	0.15	0.20	0.25	
K₁	Grey cast iron (GG)	vc [m/min.]	110				Carbide + BSP-Coating
		f [mm/rev.]	0.80	1.50	1.80	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
K₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	120				Carbide + BSP-Coating
		f [mm/rev.]	0.80	1.50	1.80	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
K₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	90				Carbide + BSP-Coating
		f [mm/rev.]	0.80	1.50	1.80	2.50	
		Allowance a [mm]	0.20	0.20	0.30	0.30	
S	Titanium *	vc [m/min.]	15				Carbide + BTi-Coating
		f [mm/rev.]	0.10	0.20	0.25	0.30	
		Allowance a [mm]	0.10	0.15	0.20	0.25	

*With special blade geometry and coating.

Machining Values for Carbide Machine Reamers

	Material	Application data	ø [mm]						Cutting material
			< 5.00 mm	5.00-8.00	8.00-12.00	12.00-16.00	16.00-30.00	30.00-50.00	
P ₁	Steel < 700 N/mm ²	vc [m/min.]	20						Carbide
		f [mm/rev.]	0.10	0.15	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
P ₂	Steel 700-900 N/mm ²	vc [m/min.]	15						Carbide
		f [mm/rev.]	0.10	0.15	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
P ₃	Steel 900-1,200 N/mm ²	vc [m/min.]	12						Carbide
		f [mm/rev.]	0.10	0.15	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
K ₁	Grey cast iron (GG)	vc [m/min.]	18						Carbide
		f [mm/rev.]	0.10	0.20	0.30	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
K ₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	15						Carbide
		f [mm/rev.]	0.10	0.20	0.30	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
K ₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	10						Carbide
		f [mm/rev.]	0.10	0.20	0.30	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
N ₁	Cu-/Zn-/Mg-alloys	vc [m/min.]	30						Carbide
		f [mm/rev.]	0.15	0.20	0.25	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
N ₂	Aluminium alloys (Si < 7 %)	vc [m/min.]	40						Carbide
		f [mm/rev.]	0.15	0.20	0.25	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
N ₃	Aluminium alloys (Si > 7 %)	vc [m/min.]	25						Carbide
		f [mm/rev.]	0.15	0.20	0.25	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
N ₄	Plastics	vc [m/min.]	40						Carbide
		f [mm/rev.]	0.15	0.20	0.25	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	

	Material	Application data	ø [mm]						Cutting material
			< 5.00 mm	5.00-8.00	8.00-12.00	12.00-16.00	16.00-30.00	30.00-50.00	
P ₁	Steel < 700 N/mm ²	vc [m/min.]	30						Carbide + TiAlN
		f [mm/rev.]	0.10	0.15	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.10	0.20	0.20	0.30	0.30	
P ₂	Steel 700-900 N/mm ²	vc [m/min.]	25						Carbide + TiAlN
		f [mm/rev.]	0.10	0.15	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.10	0.20	0.20	0.30	0.30	
P ₃	Steel 900-1,200 N/mm ²	vc [m/min.]	15						Carbide + TiAlN
		f [mm/rev.]	0.10	0.15	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.10	0.20	0.20	0.30	0.30	
M ₁	Stainless and corrosion-resistant steels < 700 N/mm ² *	vc [m/min.]	15						Carbide + Coating
		f [mm/rev.]	0.08	0.10	0.15	0.20	0.25	0.30	
		Allowance a [mm]	0.08	0.10	0.10	0.20	0.20	0.30	
M ₂	Stainless and corrosion-resistant steels > 700 N/mm ² *	vc [m/min.]	10						Carbide + Coating
		f [mm/rev.]	0.08	0.10	0.15	0.20	0.25	0.30	
		Allowance a [mm]	0.08	0.10	0.10	0.20	0.20	0.30	
K ₁	Grey cast iron (GG)	vc [m/min.]	30						Carbide + TiAlN
		f [mm/rev.]	0.10	0.20	0.30	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.10	0.20	0.20	0.30	0.30	
K ₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	25						Carbide + TiAlN
		f [mm/rev.]	0.10	0.20	0.30	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.10	0.20	0.20	0.30	0.30	
K ₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	20						Carbide + TiAlN
		f [mm/rev.]	0.10	0.20	0.30	0.30	0.40	0.50	
		Allowance a [mm]	0.10	0.10	0.20	0.20	0.30	0.30	
S	Titanium *	vc [m/min.]	10						Carbide + Coating
		f [mm/rev.]	0.06	0.10	0.12	0.18	0.20	0.25	
		Allowance a [mm]	0.05	0.10	0.10	0.15	0.20	0.20	
H	Hardened materials < 63 HRC*	vc [m/min.]	8						Carbide + Coating
		f [mm/rev.]	0.05	0.08	0.10	0.13	0.15	0.20	
		Allowance a [mm]	0.05	0.05	0.10	0.10	0.15	0.20	

* With special blade geometry and coating.

Machining Values for HSS-E Machine Reamers

	Material	Application data	ø [mm]						Cutting material
			< 5.00 mm	5.00-8.00	8.00-12.00	12.00-16.00	16.00-30.00	30.00-50.00	
P₁	Steel < 700 N/mm ²	vc [m/min.]	12						HSS-E
		f [mm/rev.]	0.10	0.15	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
P₂	Steel 700-900 N/mm ²	vc [m/min.]	10						HSS-E
		f [mm/rev.]	0.10	0.15	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
P₃	Steel 900-1,200 N/mm ²	vc [m/min.]	10						HSS-E
		f [mm/rev.]	0.10	0.15	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
K₁	Grey cast iron (GG)	vc [m/min.]	12						HSS-E / HSS-E + TiN
		f [mm/rev.]	0.15	0.20	0.25	0.30	0.35	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
K₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	10						HSS-E / HSS-E + TiN
		f [mm/rev.]	0.15	0.20	0.25	0.30	0.35	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
K₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	10						HSS-E / HSS-E + TiN
		f [mm/rev.]	0.15	0.20	0.25	0.30	0.35	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
N₁	Cu-/Zn-/Mg-alloys	vc [m/min.]	20						HSS-E
		f [mm/rev.]	0.15	0.20	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
N₂	Aluminium alloys (Si < 7 %)	vc [m/min.]	15						HSS-E
		f [mm/rev.]	0.15	0.20	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	
N₄	Plastics	vc [m/min.]	25						HSS-E
		f [mm/rev.]	0.15	0.20	0.20	0.25	0.30	0.40	
		Allowance a [mm]	0.10	0.15	0.20	0.20	0.30	0.30	

*With special blade geometry and coating.

Machining Values for Solid Carbide Countersinks

	Material	Application data	ø [mm]							
			< 5.00	5.00-8.00	8.00-12.00	12.00-16.00	16.00-20.00	20.00-25.00	25.00-40.00	40.00-63.00
P₁	Steel < 700 N/mm ²	vc [m/min.]	60							
		f [mm/rev.]	0.06	0.08	0.10	0.12	0.14	0.18	0.22	0.30
P₂	Steel 700-900 N/mm ²	vc [m/min.]	50							
		f [mm/rev.]	0.04	0.06	0.08	0.10	0.12	0.14	0.18	0.25
P₃	Steel 900-1,200 N/mm ²	vc [m/min.]	18							
		f [mm/rev.]	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16
M₁	Stainless and corrosion-resistant steels < 700 N/mm ² *	vc [m/min.]	16							
		f [mm/rev.]	0.04	0.05	0.06	0.07	0.08	0.09	0.12	0.14
M₂	Stainless and corrosion-resistant steels > 700 N/mm ² *	vc [m/min.]	16							
		f [mm/rev.]	0.04	0.05	0.06	0.07	0.08	0.09	0.12	0.14
K₁	Grey cast iron (GG)	vc [m/min.]	25							
		f [mm/rev.]	0.06	0.10	0.12	0.14	0.18	0.20	0.25	0.28
K₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	25							
		f [mm/rev.]	0.06	0.10	0.12	0.14	0.18	0.20	0.25	0.28
K₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	18							
		f [mm/rev.]	0.06	0.10	0.12	0.14	0.18	0.20	0.25	0.28
N₁	Cu-/Zn-/Mg-alloys	vc [m/min.]	65							
		f [mm/rev.]	0.10	0.12	0.14	0.18	0.20	0.20	0.30	0.40
N₂	Aluminium alloys (Si < 7 %)	vc [m/min.]	75							
		f [mm/rev.]	0.08	0.10	0.12	0.14	0.18	0.22	0.26	0.30
N₃	Aluminium alloys (Si > 7 %)	vc [m/min.]	50							
		f [mm/rev.]	0.08	0.10	0.12	0.14	0.18	0.22	0.26	0.30
N₄	Plastics	vc [m/min.]	65							
		f [mm/rev.]	0.10	0.12	0.14	0.18	0.20	0.24	0.30	0.40
S	Titanium	vc [m/min.]	16							
		f [mm/rev.]	0.04	0.05	0.06	0.07	0.08	0.09	0.12	0.14
H	Hardened materials < 63 HRC	vc [m/min.]	8							
		f [mm/rev.]	0.04	0.05	0.06	0.08	0.08	0.10	---	---

Machining Values for HSS Countersinks

	Material	Application data	ø [mm]							
			< 5.00	5.00-8.00	8.00-12.00	12.00-16.00	16.00-20.00	20.00-25.00	25.00-40.00	40.00-63.00
P₁	Steel < 700 N/mm²	vc [m/min.]	60							
		f [mm/rev.]	0.06	0.08	0.10	0.12	0.14	0.18	0.22	0.30
P₂	Steel 700-900 N/mm²	vc [m/min.]	50							
		f [mm/rev.]	0.04	0.06	0.08	0.10	0.12	0.14	0.18	0.25
P₃	Steel 900-1,200 N/mm²	vc [m/min.]	18							
		f [mm/rev.]	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16
M₁	Stainless and corrosion-resistant steels < 700 N/mm² *	vc [m/min.]	16							
		f [mm/rev.]	0.04	0.05	0.06	0.07	0.08	0.09	0.12	0.14
M₂	Stainless and corrosion-resistant steels > 700 N/mm² *	vc [m/min.]	16							
		f [mm/rev.]	0.04	0.05	0.06	0.07	0.08	0.09	0.12	0.14
K₁	Grey cast iron (GG)	vc [m/min.]	25							
		f [mm/rev.]	0.06	0.10	0.12	0.14	0.18	0.20	0.25	0.28
K₂	Spheroidal graphite cast iron (up to GGG50)	vc [m/min.]	25							
		f [mm/rev.]	0.06	0.10	0.12	0.14	0.18	0.20	0.25	0.28
K₃	Spheroidal graphite cast iron (> GGG50)	vc [m/min.]	18							
		f [mm/rev.]	0.06	0.10	0.12	0.14	0.18	0.20	0.25	0.28
N₁	Cu-/Zn-/Mg-alloys	vc [m/min.]	65							
		f [mm/rev.]	0.10	0.12	0.14	0.18	0.20	0.20	0.30	0.40
N₂	Aluminium alloys (Si < 7 %)	vc [m/min.]	75							
		f [mm/rev.]	0.08	0.10	0.12	0.14	0.18	0.22	0.26	0.30
N₃	Aluminium alloys (Si > 7 %)	vc [m/min.]	50							
		f [mm/rev.]	0.08	0.10	0.12	0.14	0.18	0.22	0.26	0.30
N₄	Plastics	vc [m/min.]	65							
		f [mm/rev.]	0.10	0.12	0.14	0.18	0.20	0.24	0.30	0.40
S	Titanium	vc [m/min.]	16							
		f [mm/rev.]	0.04	0.05	0.06	0.07	0.08	0.09	0.12	0.14
H	Hardened materials < 63 HRC	vc [m/min.]	8							
		f [mm/rev.]	0.04	0.05	0.06	0.08	0.08	0.10	---	---