

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

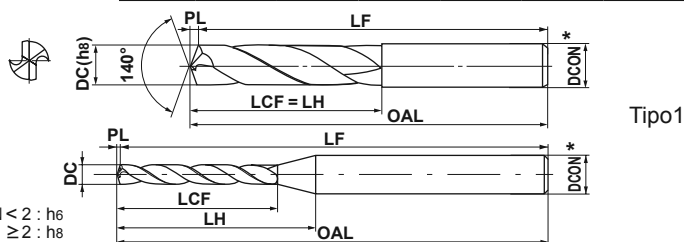
● Canal de refrigeração helicoidal permite usinagem em alta velocidade (tipo MZS).

METAL DURO

P	M	K	N	S	H
Aço	Aço Inoxidável	Ferro Fundido	Metais Não Ferrosos	Ligas Resist. ao Calor	Aço Endurecido (MZE somente)

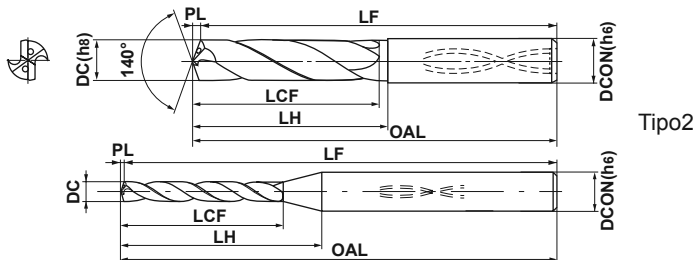
	DC < 2	2 ≤ DC ≤ 3	3 < DC ≤ 6	6 < DC ≤ 10	10 < DC ≤ 18	18 < DC ≤ 20
h_6, h_8	0 -0.014	0 -0.014	0 -0.018	0 -0.022	0 -0.027	0 -0.033
MZE	0 -0.014	0 -0.018	0 -0.022	0 -0.027	0 -0.033	0 -0.033
MZS	0 -0.006	0 -0.008	0 -0.009	0 -0.011	0 -0.011	0 -0.013

MZE (Refrigeração externa)



Tipo1

MZS (Refrigeração interna)



Tipo2

(Nota) As brocas MZS são indicadas para uso com mandris de contração térmica.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
1.0	2	Ext.	●	MZE0100SB	6.2	8.2	55.2	55	0.2	2.0	1
	5	Int.	●	MZS0100LB	11.2	15.2	55.2	55	0.2	3.0	2
	12	Int.	□	MZS0100XB	23.2	27.2	55.2	55	0.2	3.0	2
1.1	2	Ext.	●	MZE0110SB	7.2	9.2	55.2	55	0.2	2.0	1
	5	Int.	●	MZS0110LB	17.2	21.2	55.2	55	0.2	3.0	2
	12	Int.	□	MZS0110XB	23.2	27.2	55.2	55	0.2	3.0	2
1.2	2	Ext.	●	MZE0120SB	8.2	9.2	55.2	55	0.2	2.0	1
	5	Int.	●	MZS0120LB	17.2	20.2	55.2	55	0.2	3.0	2
	12	Int.	□	MZS0120XB	23.2	26.2	55.2	55	0.2	3.0	2
1.3	2	Ext.	●	MZE0130SB	8.2	9.2	55.2	55	0.2	2.0	1
	5	Int.	●	MZS0130LB	17.2	20.2	55.2	55	0.2	3.0	2
	12	Int.	□	MZS0130XB	23.2	26.2	55.2	55	0.2	3.0	2
1.4	2	Ext.	●	MZE0140SB	9.3	10.3	55.3	55	0.3	2.0	1
	5	Int.	●	MZS0140LB	17.3	20.3	55.3	55	0.3	3.0	2
	12	Int.	□	MZS0140XB	23.3	26.3	55.3	55	0.3	3.0	2
1.5	2	Ext.	●	MZE0150SB	9.3	10.3	55.3	55	0.3	2.0	1
	5	Int.	●	MZS0150LB	17.3	20.3	55.3	55	0.3	3.0	2
	12	Int.	□	MZS0150XB	23.3	26.3	55.3	55	0.3	3.0	2
1.6	2	Ext.	●	MZE0160SB	10.3	10.3	55.3	55	0.3	2.0	1
	5	Int.	●	MZS0160LB	22.3	25.3	68.3	68	0.3	3.0	2
	12	Int.	□	MZS0160XB	30.3	33.3	68.3	68	0.3	3.0	2
1.7	2	Ext.	●	MZE0170SB	10.3	10.3	55.3	55	0.3	2.0	1
	5	Int.	●	MZS0170LB	22.3	24.3	68.3	68	0.3	3.0	2
	12	Int.	□	MZS0170XB	30.3	32.3	68.3	68	0.3	3.0	2
1.8	2	Ext.	●	MZE0180SB	11.3	11.3	55.3	55	0.3	2.0	1
	5	Int.	●	MZS0180LB	22.3	24.3	68.3	68	0.3	3.0	2
	12	Int.	□	MZS0180XB	30.3	32.3	68.3	68	0.3	3.0	2
1.9	2	Ext.	●	MZE0190SB	11.3	11.3	55.3	55	0.3	2.0	1
	5	Int.	●	MZS0190LB	22.3	24.3	68.3	68	0.3	3.0	2
	12	Int.	□	MZS0190XB	30.3	32.3	68.3	68	0.3	3.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

● : Estoque mantido. □ : Sem estoque, produzido somente por pedido.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
2.0	2	Ext.	●	MZE0200SA	12.4	12.4	55.4	55	0.4	2.0	1
	3	Ext.	●	MZE0200MA	16.4	16.4	55.4	55	0.4	2.0	1
	3	Int.	●	MZS0200MB	16.4	18.4	62.4	62	0.4	3.0	2
	5	Int.	●	MZS0200LB	22.4	24.4	68.4	68	0.4	3.0	2
	12	Int.	□	MZS0200XB	30.4	32.4	68.4	68	0.4	3.0	2
2.1	2	Ext.	●	MZE0210SA	12.4	12.4	55.4	55	0.4	2.1	1
	3	Ext.	●	MZE0210MA	16.4	16.4	55.4	55	0.4	2.1	1
	3	Int.	●	MZS0210MB	20.4	22.4	66.4	66	0.4	3.0	2
	5	Int.	●	MZS0210LB	28.4	30.4	74.4	74	0.4	3.0	2
	12	Int.	□	MZS0210XB	38.4	40.4	74.4	74	0.4	3.0	2
2.2	2	Ext.	●	MZE0220SA	13.4	13.4	55.4	55	0.4	2.2	1
	3	Ext.	●	MZE0220MA	18.4	18.4	55.4	55	0.4	2.2	1
	3	Int.	●	MZS0220MB	20.4	21.4	66.4	66	0.4	3.0	2
	5	Int.	●	MZS0220LB	28.4	29.4	74.4	74	0.4	3.0	2
	12	Int.	□	MZS0220XB	38.4	39.4	74.4	74	0.4	3.0	2
2.3	2	Ext.	●	MZE0230SA	13.4	13.4	55.4	55	0.4	2.3	1
	3	Ext.	●	MZE0230MA	18.4	18.4	55.4	55	0.4	2.3	1
	3	Int.	●	MZS0230MB	20.4	21.4	66.4	66	0.4	3.0	2
	5	Int.	●	MZS0230LB	28.4	29.4	74.4	74	0.4	3.0	2
	12	Int.	□	MZS0230XB	38.4	39.4	74.4	74	0.4	3.0	2
2.4	2	Ext.	●	MZE0240SA	16.4	16.4	55.4	55	0.4	2.4	1
	3	Ext.	●	MZE0240MA	20.4	20.4	55.4	55	0.4	2.4	1
	3	Int.	●	MZS0240MB	20.4	21.4	66.4	66	0.4	3.0	2
	5	Int.	●	MZS0240LB	28.4	29.4	74.4	74	0.4	3.0	2
	12	Int.	□	MZS0240XB	38.4	39.4	74.4	74	0.4	3.0	2
2.5	2	Ext.	●	MZE0250SA	16.5	16.5	55.5	55	0.5	2.5	1
	3	Ext.	●	MZE0250MA	20.5	20.5	55.5	55	0.5	2.5	1
	3	Int.	●	MZS0250MB	20.5	21.5	66.5	66	0.5	3.0	2
	5	Int.	●	MZS0250LB	28.5	29.5	74.5	74	0.5	3.0	2
	12	Int.	□	MZS0250XB	38.5	39.5	74.5	74	0.5	3.0	2
2.6	2	Ext.	●	MZE0260SA	16.5	16.5	55.5	55	0.5	2.6	1
	3	Ext.	●	MZE0260MA	20.5	20.5	55.5	55	0.5	2.6	1
	3	Int.	●	MZS0260MB	24.5	24.5	72.5	72	0.5	3.0	2
	5	Int.	●	MZS0260LB	33.5	33.5	81.5	81	0.5	3.0	2
	12	Int.	□	MZS0260XB	45.5	45.5	81.5	81	0.5	3.0	2
2.7	2	Ext.	●	MZE0270SA	16.5	16.5	55.5	55	0.5	2.7	1
	3	Ext.	●	MZE0270MA	20.5	20.5	55.5	55	0.5	2.7	1
	3	Int.	●	MZS0270MB	24.5	24.5	72.5	72	0.5	3.0	2
	5	Int.	●	MZS0270LB	33.5	33.5	81.5	81	0.5	3.0	2
	12	Int.	□	MZS0270XB	45.5	45.5	81.5	81	0.5	3.0	2
2.8	2	Ext.	●	MZE0280SA	16.5	16.5	55.5	55	0.5	2.8	1
	3	Ext.	●	MZE0280MA	21.5	21.5	60.5	60	0.5	2.8	1
	3	Int.	●	MZS0280MB	24.5	24.5	72.5	72	0.5	3.0	2
	5	Int.	●	MZS0280LB	33.5	33.5	81.5	81	0.5	3.0	2
	12	Int.	□	MZS0280XB	45.5	45.5	81.5	81	0.5	3.0	2

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METAL DURO

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
2.9	2	Ext.	●	MZE0290SA	16.5	16.5	55.5	55	0.5	2.9	1
	3	Ext.	●	MZE0290MA	21.5	21.5	60.5	60	0.5	2.9	1
	3	Int.	●	MZS0290MB	24.5	24.5	72.5	72	0.5	3.0	2
	5	Int.	●	MZS0290LB	33.5	33.5	81.5	81	0.5	3.0	2
	12	Int.	□	MZS0290XB	45.5	45.5	81.5	81	0.5	3.0	2
3.0	2	Ext.	●	MZE0300SA	16.5	16.5	55.5	55	0.5	3.0	1
	3	Ext.	●	MZE0300MA	21.5	21.5	60.5	60	0.5	3.0	1
	3	Int.	●	MZS0300MB	24.5	24.5	72.5	72	0.5	3.0	2
	5	Int.	●	MZS0300LB	33.5	33.5	81.5	81	0.5	3.0	2
3.1	2	Ext.	●	MZE0310SA	18.6	18.6	55.6	55	0.6	3.1	1
	3	Ext.	●	MZE0310MA	24.6	24.6	60.6	60	0.6	3.1	1
	3	Int.	●	MZS0310MB	28.6	28.6	76.6	76	0.6	4.0	2
	5	Int.	●	MZS0310LB	39.6	39.6	87.6	87	0.6	4.0	2
3.2	2	Ext.	●	MZE0320SA	18.6	18.6	55.6	55	0.6	3.2	1
	3	Ext.	●	MZE0320MA	24.6	24.6	60.6	60	0.6	3.2	1
	3	Int.	●	MZS0320MB	28.6	28.6	76.6	76	0.6	4.0	2
	5	Int.	●	MZS0320LB	39.6	39.6	87.6	87	0.6	4.0	2
3.3	2	Ext.	●	MZE0330SA	18.6	18.6	55.6	55	0.6	3.3	1
	3	Ext.	●	MZE0330MA	24.6	24.6	60.6	60	0.6	3.3	1
	3	Int.	●	MZS0330MB	28.6	28.6	76.6	76	0.6	4.0	2
	5	Int.	●	MZS0330LB	39.6	39.6	87.6	87	0.6	4.0	2
3.4	2	Ext.	●	MZE0340SA	20.6	20.6	55.6	55	0.6	3.4	1
	3	Ext.	●	MZE0340MA	24.6	24.6	60.6	60	0.6	3.4	1
	3	Int.	●	MZS0340MB	28.6	28.6	76.6	76	0.6	4.0	2
	5	Int.	●	MZS0340LB	39.6	39.6	87.6	87	0.6	4.0	2
3.5	2	Ext.	●	MZE0350SA	20.6	20.6	55.6	55	0.6	3.5	1
	3	Ext.	●	MZE0350MA	24.6	24.6	60.6	60	0.6	3.5	1
	3	Int.	●	MZS0350MB	28.6	28.6	76.6	76	0.6	4.0	2
	5	Int.	●	MZS0350LB	39.6	39.6	87.6	87	0.6	4.0	2
3.6	2	Ext.	●	MZE0360SA	20.7	20.7	55.7	55	0.7	3.6	1
	3	Ext.	●	MZE0360MA	27.7	27.7	60.7	60	0.7	3.6	1
	3	Int.	●	MZS0360MB	32.7	32.7	80.7	80	0.7	4.0	2
	5	Int.	●	MZS0360LB	44.7	44.7	92.7	92	0.7	4.0	2
3.7	2	Ext.	●	MZE0370SA	20.7	20.7	55.7	55	0.7	3.7	1
	3	Ext.	●	MZE0370MA	27.7	27.7	60.7	60	0.7	3.7	1
	3	Int.	●	MZS0370MB	32.7	32.7	80.7	80	0.7	4.0	2
	5	Int.	●	MZS0370LB	44.7	44.7	92.7	92	0.7	4.0	2
3.8	2	Ext.	●	MZE0380SA	22.7	22.7	55.7	55	0.7	3.8	1
	3	Ext.	●	MZE0380MA	27.7	27.7	60.7	60	0.7	3.8	1
	3	Int.	●	MZS0380MB	32.7	32.7	80.7	80	0.7	4.0	2
	5	Int.	●	MZS0380LB	44.7	44.7	92.7	92	0.7	4.0	2
3.9	2	Ext.	●	MZE0390SA	22.7	22.7	55.7	55	0.7	3.9	1
	3	Ext.	●	MZE0390MA	27.7	27.7	60.7	60	0.7	3.9	1
	3	Int.	●	MZS0390MB	32.7	32.7	80.7	80	0.7	4.0	2
	5	Int.	●	MZS0390LB	44.7	44.7	92.7	92	0.7	4.0	2
4.0	2	Ext.	●	MZE0400SA	22.7	22.7	55.7	55	0.7	4.0	1
	3	Ext.	●	MZE0400MA	27.7	27.7	60.7	60	0.7	4.0	1
	3	Int.	●	MZS0400MB	32.7	32.7	80.7	80	0.7	4.0	2
	5	Int.	●	MZS0400LB	44.7	44.7	92.7	92	0.7	4.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

● : Estoque mantido. □ : Sem estoque, produzido somente por pedido.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
4.1	2	Ext.	●	MZE0410SA	22.7	22.7	55.7	55	0.7	4.1	1
	3	Ext.	●	MZE0410MA	29.7	29.7	63.7	63	0.7	4.1	1
	3	Int.	●	MZS0410MB	36.7	36.7	86.7	86	0.7	5.0	2
	5	Int.	●	MZS0410LB	50.7	50.7	100.7	100	0.7	5.0	2
4.2	2	Ext.	●	MZE0420SA	22.8	22.8	55.8	55	0.8	4.2	1
	3	Ext.	●	MZE0420MA	29.8	29.8	63.8	63	0.8	4.2	1
	3	Int.	●	MZS0420MB	36.8	36.8	86.8	86	0.8	5.0	2
	5	Int.	●	MZS0420LB	50.8	50.8	100.8	100	0.8	5.0	2
4.3	2	Ext.	●	MZE0430SA	24.8	24.8	58.8	58	0.8	4.3	1
	3	Ext.	●	MZE0430MA	29.8	29.8	63.8	63	0.8	4.3	1
	3	Int.	●	MZS0430MB	36.8	36.8	86.8	86	0.8	5.0	2
	5	Int.	●	MZS0430LB	50.8	50.8	100.8	100	0.8	5.0	2
4.4	2	Ext.	●	MZE0440SA	24.8	24.8	58.8	58	0.8	4.4	1
	3	Ext.	●	MZE0440MA	29.8	29.8	63.8	63	0.8	4.4	1
	3	Int.	●	MZS0440MB	36.8	36.8	86.8	86	0.8	5.0	2
	5	Int.	●	MZS0440LB	50.8	50.8	100.8	100	0.8	5.0	2
4.5	2	Ext.	●	MZE0450SA	24.8	24.8	58.8	58	0.8	4.5	1
	3	Ext.	●	MZE0450MA	29.8	29.8	63.8	63	0.8	4.5	1
	3	Int.	●	MZS0450MB	36.8	36.8	86.8	86	0.8	5.0	2
	5	Int.	●	MZS0450LB	50.8	50.8	100.8	100	0.8	5.0	2
4.6	2	Ext.	●	MZE0460SA	24.8	24.8	58.8	58	0.8	4.6	1
	3	Ext.	●	MZE0460MA	32.8	32.8	68.8	68	0.8	4.6	1
	3	Int.	●	MZS0460MB	40.8	40.8	90.8	90	0.8	5.0	2
	5	Int.	●	MZS0460LB	55.8	55.8	105.8	105	0.8	5.0	2
4.7	2	Ext.	●	MZE0470SA	24.9	24.9	58.9	58	0.9	4.7	1
	3	Ext.	●	MZE0470MA	32.9	32.9	68.9	68	0.9	4.7	1
	3	Int.	●	MZS0470MB	40.9	40.9	90.9	90	0.9	5.0	2
	5	Int.	●	MZS0470LB	55.9	55.9	105.9	105	0.9	5.0	2
4.8	2	Ext.	●	MZE0480SA	26.9	26.9	62.9	62	0.9	4.8	1
	3	Ext.	●	MZE0480MA	32.9	32.9	68.9	68	0.9	4.8	1
	3	Int.	●	MZS0480MB	40.9	40.9	90.9	90	0.9	5.0	2
	5	Int.	●	MZS0480LB	55.9	55.9	105.9	105	0.9	5.0	2
4.9	2	Ext.	●	MZE0490SA	26.9	26.9	62.9	62	0.9	4.9	1
	3	Ext.	●	MZE0490MA	32.9	32.9	68.9	68	0.9	4.9	1
	3	Int.	●	MZS0490MB	40.9	40.9	90.9	90	0.9	5.0	2
	5	Int.	●	MZS0490LB	55.9	55.9	105.9	105	0.9	5.0	2
5.0	2	Ext.	●	MZE0500SA	26.9	26.9	62.9	62	0.9	5.0	1
	3	Ext.	●	MZE0500MA	32.9	32.9	68.9	68	0.9	5.0	1
	3	Int.	●	MZS0500MB	28.4	30.9	82.9	82	0.9	6.0	2
	5	Int.	●	MZS0500LB	44.9	48.9	100.9	100	0.9	6.0	2
5.1	2	Ext.	●	MZE0510SA	26.9	26.9	62.9	62	0.9	5.1	1
	3	Ext.	●	MZE0510MA	34.9	34.9	72.9	72	0.9	5.1	1
	3	Int.	●	MZS0510MB	28.4	30.9	82.9	82	0.9	6.0	2
	5	Int.	●	MZS0510LB	44.9	48.9	100.9	100	0.9	6.0	2
5.2	2	Ext.	●	MZE0520SA	26.9	26.9	62.9	62	0.9	5.2	1
	3	Ext.	●	MZE0520MA	34.9	34.9	72.9	72	0.9	5.2	1
	3	Int.	●	MZS0520MB	28.4	30.9	82.9	82	0.9	6.0	2
	5	Int.	●	MZS0520LB	44.9	48.9	100.9	100	0.9	6.0	2

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DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
5.3	2	Ext.	●	MZE0530SA	27.0	27.0	63.0	62	1.0	5.3	1
	3	Ext.	●	MZE0530MA	35.0	35.0	73.0	72	1.0	5.3	1
	3	Int.	●	MZS0530MB	28.5	31.0	83.0	82	1.0	6.0	2
	5	Int.	●	MZS0530LB	45.0	49.0	101.0	100	1.0	6.0	2
5.4	2	Ext.	●	MZE0540SA	29.0	29.0	67.0	66	1.0	5.4	1
	3	Ext.	●	MZE0540MA	35.0	35.0	73.0	72	1.0	5.4	1
	3	Int.	●	MZS0540MB	28.5	31.0	83.0	82	1.0	6.0	2
	5	Int.	●	MZS0540LB	45.0	49.0	101.0	100	1.0	6.0	2
5.5	2	Ext.	●	MZE0550SA	29.0	29.0	67.0	66	1.0	5.5	1
	3	Ext.	●	MZE0550MA	35.0	35.0	73.0	72	1.0	5.5	1
	3	Int.	●	MZS0550MB	28.5	31.0	83.0	82	1.0	6.0	2
	5	Int.	●	MZS0550LB	45.0	49.0	101.0	100	1.0	6.0	2
5.6	2	Ext.	●	MZE0560SA	29.0	29.0	67.0	66	1.0	5.6	1
	3	Ext.	●	MZE0560MA	37.0	37.0	75.0	74	1.0	5.6	1
	3	Int.	●	MZS0560MB	31.0	31.0	83.0	82	1.0	6.0	2
	5	Int.	●	MZS0560LB	49.0	49.0	101.0	100	1.0	6.0	2
5.7	2	Ext.	●	MZE0570SA	29.0	29.0	67.0	66	1.0	5.7	1
	3	Ext.	●	MZE0570MA	37.0	37.0	75.0	74	1.0	5.7	1
	3	Int.	●	MZS0570MB	31.0	31.0	83.0	82	1.0	6.0	2
	5	Int.	●	MZS0570LB	49.0	49.0	101.0	100	1.0	6.0	2
5.8	2	Ext.	●	MZE0580SA	29.1	29.1	67.1	66	1.1	5.8	1
	3	Ext.	●	MZE0580MA	37.1	37.1	75.1	74	1.1	5.8	1
	3	Int.	●	MZS0580MB	31.1	31.1	83.1	82	1.1	6.0	2
	5	Int.	●	MZS0580LB	49.1	49.1	101.1	100	1.1	6.0	2
5.9	2	Ext.	●	MZE0590SA	29.1	29.1	67.1	66	1.1	5.9	1
	3	Ext.	●	MZE0590MA	37.1	37.1	75.1	74	1.1	5.9	1
	3	Int.	●	MZS0590MB	31.1	31.1	83.1	82	1.1	6.0	2
	5	Int.	●	MZS0590LB	49.1	49.1	101.1	100	1.1	6.0	2
6.0	2	Ext.	●	MZE0600SA	29.1	29.1	67.1	66	1.1	6.0	1
	3	Ext.	●	MZE0600MA	42.1	42.1	82.1	81	1.1	6.0	1
	3	Int.	●	MZS0600MB	31.1	31.1	83.1	82	1.1	6.0	2
	5	Int.	●	MZS0600LB	49.1	49.1	101.1	100	1.1	6.0	2
6.1	2	Ext.	●	MZE0610SA	32.1	32.1	71.1	70	1.1	6.1	1
	3	Ext.	●	MZE0610MA	42.1	42.1	82.1	81	1.1	6.1	1
	3	Int.	●	MZS0610MB	33.6	36.1	89.1	88	1.1	7.0	2
	5	Int.	●	MZS0610LB	53.1	57.1	110.1	109	1.1	7.0	2
6.2	2	Ext.	●	MZE0620SA	32.1	32.1	71.1	70	1.1	6.2	1
	3	Ext.	●	MZE0620MA	42.1	42.1	82.1	81	1.1	6.2	1
	3	Int.	●	MZS0620MB	33.6	36.1	89.1	88	1.1	7.0	2
	5	Int.	●	MZS0620LB	53.1	57.1	110.1	109	1.1	7.0	2
6.3	2	Ext.	●	MZE0630SA	32.1	32.1	71.1	70	1.1	6.3	1
	3	Ext.	●	MZE0630MA	42.1	42.1	82.1	81	1.1	6.3	1
	3	Int.	●	MZS0630MB	33.6	36.1	89.1	88	1.1	7.0	2
	5	Int.	●	MZS0630LB	53.1	57.1	110.1	109	1.1	7.0	2
6.4	2	Ext.	●	MZE0640SA	32.2	32.2	71.2	70	1.2	6.4	1
	3	Ext.	●	MZE0640MA	42.2	42.2	82.2	81	1.2	6.4	1
	3	Int.	●	MZS0640MB	33.7	36.2	89.2	88	1.2	7.0	2
	5	Int.	●	MZS0640LB	53.2	57.2	110.2	109	1.2	7.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

● : Estoque mantido.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
6.5	2	Ext.	●	MZE0650SA	32.2	32.2	71.2	70	1.2	6.5	1
	3	Ext.	●	MZE0650MA	42.2	42.2	82.2	81	1.2	6.5	1
	3	Int.	●	MZS0650MB	33.7	36.2	89.2	88	1.2	7.0	2
	5	Int.	●	MZS0650LB	53.2	57.2	110.2	109	1.2	7.0	2
6.6	2	Ext.	●	MZE0660SA	32.2	32.2	71.2	70	1.2	6.6	1
	3	Ext.	●	MZE0660MA	44.2	44.2	84.2	83	1.2	6.6	1
	3	Int.	●	MZS0660MB	36.2	36.2	89.2	88	1.2	7.0	2
	5	Int.	●	MZS0660LB	57.2	57.2	110.2	109	1.2	7.0	2
6.7	2	Ext.	●	MZE0670SA	32.2	32.2	71.2	70	1.2	6.7	1
	3	Ext.	●	MZE0670MA	44.2	44.2	84.2	83	1.2	6.7	1
	3	Int.	●	MZS0670MB	36.2	36.2	89.2	88	1.2	7.0	2
	5	Int.	●	MZS0670LB	57.2	57.2	110.2	109	1.2	7.0	2
6.8	2	Ext.	●	MZE0680SA	35.2	35.2	75.2	74	1.2	6.8	1
	3	Ext.	●	MZE0680MA	44.2	44.2	84.2	83	1.2	6.8	1
	3	Int.	●	MZS0680MB	36.2	36.2	89.2	88	1.2	7.0	2
	5	Int.	●	MZS0680LB	57.2	57.2	110.2	109	1.2	7.0	2
6.9	2	Ext.	●	MZE0690SA	35.3	35.3	75.3	74	1.3	6.9	1
	3	Ext.	●	MZE0690MA	44.3	44.3	84.3	83	1.3	6.9	1
	3	Int.	●	MZS0690MB	36.3	36.3	89.3	88	1.3	7.0	2
	5	Int.	●	MZS0690LB	57.3	57.3	110.3	109	1.3	7.0	2
7.0	2	Ext.	●	MZE0700SA	35.3	35.3	75.3	74	1.3	7.0	1
	3	Ext.	●	MZE0700MA	44.3	44.3	84.3	83	1.3	7.0	1
	3	Int.	●	MZS0700MB	36.3	36.3	89.3	88	1.3	7.0	2
	5	Int.	●	MZS0700LB	57.3	57.3	110.3	109	1.3	7.0	2
7.1	2	Ext.	●	MZE0710SA	35.3	35.3	75.3	74	1.3	7.1	1
	3	Ext.	●	MZE0710MA	46.3	46.3	88.3	87	1.3	7.1	1
	3	Int.	●	MZS0710MB	38.8	41.3	95.3	94	1.3	8.0	2
	5	Int.	●	MZS0710LB	61.3	65.3	119.3	118	1.3	8.0	2
7.2	2	Ext.	●	MZE0720SA	35.3	35.3	75.3	74	1.3	7.2	1
	3	Ext.	●	MZE0720MA	46.3	46.3	88.3	87	1.3	7.2	1
	3	Int.	●	MZS0720MB	38.8	41.3	95.3	94	1.3	8.0	2
	5	Int.	●	MZS0720LB	61.3	65.3	119.3	118	1.3	8.0	2
7.3	2	Ext.	●	MZE0730SA	35.3	35.3	75.3	74	1.3	7.3	1
	3	Ext.	●	MZE0730MA	46.3	46.3	88.3	87	1.3	7.3	1
	3	Int.	●	MZS0730MB	38.8	41.3	95.3	94	1.3	8.0	2
	5	Int.	●	MZS0730LB	61.3	65.3	119.3	118	1.3	8.0	2
7.4	2	Ext.	●	MZE0740SA	35.3	35.3	75.3	74	1.3	7.4	1
	3	Ext.	●	MZE0740MA	46.3	46.3	88.3	87	1.3	7.4	1
	3	Int.	●	MZS0740MB	38.8	41.3	95.3	94	1.3	8.0	2
	5	Int.	●	MZS0740LB	61.3	65.3	119.3	118	1.3	8.0	2
7.5	2	Ext.	●	MZE0750SA	35.4	35.4	75.4	74	1.4	7.5	1
	3	Ext.	●	MZE0750MA	46.4	46.4	88.4	87	1.4	7.5	1
	3	Int.	●	MZS0750MB	38.9	41.4	95.4	94	1.4	8.0	2
	5	Int.	●	MZS0750LB	61.4	65.4	119.4	118	1.4	8.0	2
7.6	2	Ext.	●	MZE0760SA	38.4	38.4	80.4	79	1.4	7.6	1
	3	Ext.	●	MZE0760MA	49.4	49.4	91.4	90	1.4	7.6	1
	3	Int.	●	MZS0760MB	41.4	41.4	95.4	94	1.4	8.0	2
	5	Int.	●	MZS0760LB	65.4	65.4	119.4	118	1.4	8.0	2

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

METAL DURO

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
7.7	2	Ext.	●	MZE0770SA	38.4	38.4	80.4	79	1.4	7.7	1
	3	Ext.	●	MZE0770MA	49.4	49.4	91.4	90	1.4	7.7	1
	3	Int.	●	MZS0770MB	41.4	41.4	95.4	94	1.4	8.0	2
	5	Int.	●	MZS0770LB	65.4	65.4	119.4	118	1.4	8.0	2
7.8	2	Ext.	●	MZE0780SA	38.4	38.4	80.4	79	1.4	7.8	1
	3	Ext.	●	MZE0780MA	49.4	49.4	91.4	90	1.4	7.8	1
	3	Int.	●	MZS0780MB	41.4	41.4	95.4	94	1.4	8.0	2
	5	Int.	●	MZS0780LB	65.4	65.4	119.4	118	1.4	8.0	2
7.9	2	Ext.	●	MZE0790SA	38.4	38.4	80.4	79	1.4	7.9	1
	3	Ext.	●	MZE0790MA	49.4	49.4	91.4	90	1.4	7.9	1
	3	Int.	●	MZS0790MB	41.4	41.4	95.4	94	1.4	8.0	2
	5	Int.	●	MZS0790LB	65.4	65.4	119.4	118	1.4	8.0	2
8.0	2	Ext.	●	MZE0800SA	38.5	38.5	80.5	79	1.5	8.0	1
	3	Ext.	●	MZE0800MA	49.5	49.5	91.5	90	1.5	8.0	1
	3	Int.	●	MZS0800MB	41.5	41.5	95.5	94	1.5	8.0	2
	5	Int.	●	MZS0800LB	65.5	65.5	119.5	118	1.5	8.0	2
8.1	2	Ext.	●	MZE0810SA	38.5	38.5	80.5	79	1.5	8.1	1
	3	Ext.	●	MZE0810MA	54.5	54.5	97.5	96	1.5	8.1	1
	3	Int.	●	MZS0810MB	44.0	46.5	101.5	100	1.5	9.0	2
	5	Int.	●	MZS0810LB	69.5	73.5	128.5	127	1.5	9.0	2
8.2	2	Ext.	●	MZE0820SA	38.5	38.5	80.5	79	1.5	8.2	1
	3	Ext.	●	MZE0820MA	54.5	54.5	97.5	96	1.5	8.2	1
	3	Int.	●	MZS0820MB	44.0	46.5	101.5	100	1.5	9.0	2
	5	Int.	●	MZS0820LB	69.5	73.5	128.5	127	1.5	9.0	2
8.3	2	Ext.	●	MZE0830SA	38.5	38.5	80.5	79	1.5	8.3	1
	3	Ext.	●	MZE0830MA	54.5	54.5	97.5	96	1.5	8.3	1
	3	Int.	●	MZS0830MB	44.0	46.5	101.5	100	1.5	9.0	2
	5	Int.	●	MZS0830LB	69.5	73.5	128.5	127	1.5	9.0	2
8.4	2	Ext.	●	MZE0840SA	38.5	38.5	80.5	79	1.5	8.4	1
	3	Ext.	●	MZE0840MA	54.5	54.5	97.5	96	1.5	8.4	1
	3	Int.	●	MZS0840MB	44.0	46.5	101.5	100	1.5	9.0	2
	5	Int.	●	MZS0840LB	69.5	73.5	128.5	127	1.5	9.0	2
8.5	2	Ext.	●	MZE0850SA	38.5	38.5	80.5	79	1.5	8.5	1
	3	Ext.	●	MZE0850MA	54.5	54.5	97.5	96	1.5	8.5	1
	3	Int.	●	MZS0850MB	44.0	46.5	101.5	100	1.5	9.0	2
	5	Int.	●	MZS0850LB	69.5	73.5	128.5	127	1.5	9.0	2
8.6	2	Ext.	●	MZE0860SA	41.6	41.6	85.6	84	1.6	8.6	1
	3	Ext.	●	MZE0860MA	56.6	56.6	99.6	98	1.6	8.6	1
	3	Int.	●	MZS0860MB	46.6	46.6	101.6	100	1.6	9.0	2
	5	Int.	●	MZS0860LB	73.6	73.6	128.6	127	1.6	9.0	2
8.7	2	Ext.	●	MZE0870SA	41.6	41.6	85.6	84	1.6	8.7	1
	3	Ext.	●	MZE0870MA	56.6	56.6	99.6	98	1.6	8.7	1
	3	Int.	●	MZS0870MB	46.6	46.6	101.6	100	1.6	9.0	2
	5	Int.	●	MZS0870LB	73.6	73.6	128.6	127	1.6	9.0	2
8.8	2	Ext.	●	MZE0880SA	41.6	41.6	85.6	84	1.6	8.8	1
	3	Ext.	●	MZE0880MA	56.6	56.6	99.6	98	1.6	8.8	1
	3	Int.	●	MZS0880MB	46.6	46.6	101.6	100	1.6	9.0	2
	5	Int.	●	MZS0880LB	73.6	73.6	128.6	127	1.6	9.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

● : Estoque mantido.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
8.9	2	Ext.	●	MZE0890SA	41.6	41.6	85.6	84	1.6	8.9	1
	3	Ext.	●	MZE0890MA	56.6	56.6	99.6	98	1.6	8.9	1
	3	Int.	●	MZS0890MB	46.6	46.6	101.6	100	1.6	9.0	2
	5	Int.	●	MZS0890LB	73.6	73.6	128.6	127	1.6	9.0	2
9.0	2	Ext.	●	MZE0900SA	41.6	41.6	85.6	84	1.6	9.0	1
	3	Ext.	●	MZE0900MA	56.6	56.6	99.6	98	1.6	9.0	1
	3	Int.	●	MZS0900MB	46.6	46.6	101.6	100	1.6	9.0	2
	5	Int.	●	MZS0900LB	73.6	73.6	128.6	127	1.6	9.0	2
9.1	2	Ext.	●	MZE0910SA	41.7	41.7	85.7	84	1.7	9.1	1
	3	Ext.	●	MZE0910MA	59.7	59.7	103.7	102	1.7	9.1	1
	3	Int.	●	MZS0910MB	49.2	51.7	107.7	106	1.7	10.0	2
	5	Int.	●	MZS0910LB	77.7	81.7	137.7	136	1.7	10.0	2
9.2	2	Ext.	●	MZE0920SA	41.7	41.7	85.7	84	1.7	9.2	1
	3	Ext.	●	MZE0920MA	59.7	59.7	103.7	102	1.7	9.2	1
	3	Int.	●	MZS0920MB	49.2	51.7	107.7	106	1.7	10.0	2
	5	Int.	●	MZS0920LB	77.7	81.7	137.7	136	1.7	10.0	2
9.3	2	Ext.	●	MZE0930SA	41.7	41.7	85.7	84	1.7	9.3	1
	3	Ext.	●	MZE0930MA	59.7	59.7	103.7	102	1.7	9.3	1
	3	Int.	●	MZS0930MB	49.2	51.7	107.7	106	1.7	10.0	2
	5	Int.	●	MZS0930LB	77.7	81.7	137.7	136	1.7	10.0	2
9.4	2	Ext.	●	MZE0940SA	41.7	41.7	85.7	84	1.7	9.4	1
	3	Ext.	●	MZE0940MA	59.7	59.7	103.7	102	1.7	9.4	1
	3	Int.	●	MZS0940MB	49.2	51.7	107.7	106	1.7	10.0	2
	5	Int.	●	MZS0940LB	77.7	81.7	137.7	136	1.7	10.0	2
9.5	2	Ext.	●	MZE0950SA	41.7	41.7	85.7	84	1.7	9.5	1
	3	Ext.	●	MZE0950MA	59.7	59.7	103.7	102	1.7	9.5	1
	3	Int.	●	MZS0950MB	49.2	51.7	107.7	106	1.7	10.0	2
	5	Int.	●	MZS0950LB	77.7	81.7	137.7	136	1.7	10.0	2
9.6	2	Ext.	●	MZE0960SA	44.7	44.7	90.7	89	1.7	9.6	1
	3	Ext.	●	MZE0960MA	61.7	61.7	106.7	105	1.7	9.6	1
	3	Int.	●	MZS0960MB	51.7	51.7	107.7	106	1.7	10.0	2
	5	Int.	●	MZS0960LB	81.7	81.7	137.7	136	1.7	10.0	2
9.7	2	Ext.	●	MZE0970SA	44.8	44.8	90.8	89	1.8	9.7	1
	3	Ext.	●	MZE0970MA	61.8	61.8	106.8	105	1.8	9.7	1
	3	Int.	●	MZS0970MB	51.8	51.8	107.8	106	1.8	10.0	2
	5	Int.	●	MZS0970LB	81.8	81.8	137.8	136	1.8	10.0	2
9.8	2	Ext.	●	MZE0980SA	44.8	44.8	90.8	89	1.8	9.8	1
	3	Ext.	●	MZE0980MA	61.8	61.8	106.8	105	1.8	9.8	1
	3	Int.	●	MZS0980MB	51.8	51.8	107.8	106	1.8	10.0	2
	5	Int.	●	MZS0980LB	81.8	81.8	137.8	136	1.8	10.0	2
9.9	2	Ext.	●	MZE0990SA	44.8	44.8	90.8	89	1.8	9.9	1
	3	Ext.	●	MZE0990MA	61.8	61.8	106.8	105	1.8	9.9	1
	3	Int.	●	MZS0990MB	51.8	51.8	107.8	106	1.8	10.0	2
	5	Int.	●	MZS0990LB	81.8	81.8	137.8	136	1.8	10.0	2
10.0	2	Ext.	●	MZE1000SA	44.8	44.8	90.8	89	1.8	10.0	1
	3	Ext.	●	MZE1000MA	61.8	61.8	106.8	105	1.8	10.0	1
	3	Int.	●	MZS1000MB	51.8	51.8	107.8	106	1.8	10.0	2
	5	Int.	●	MZS1000LB	81.8	81.8	137.8	136	1.8	10.0	2

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
10.1	2	Ext.	●	MZE1010SA	44.8	44.8	90.8	89	1.8	10.1	1
	3	Ext.	●	MZE1010MA	67.8	67.8	113.8	112	1.8	10.1	1
	3	Int.	●	MZS1010MB	54.3	56.8	117.8	116	1.8	11.0	2
	5	Int.	●	MZS1010LB	85.8	89.8	150.8	149	1.8	11.0	2
10.2	2	Ext.	●	MZE1020SA	44.9	44.9	90.9	89	1.9	10.2	1
	3	Ext.	●	MZE1020MA	67.9	67.9	113.9	112	1.9	10.2	1
	3	Int.	●	MZS1020MB	54.4	56.9	117.9	116	1.9	11.0	2
	5	Int.	●	MZS1020LB	85.9	89.9	150.9	149	1.9	11.0	2
10.3	2	Ext.	●	MZE1030SA	44.9	44.9	90.9	89	1.9	10.3	1
	3	Ext.	●	MZE1030MA	67.9	67.9	113.9	112	1.9	10.3	1
	3	Int.	●	MZS1030MB	54.4	56.9	117.9	116	1.9	11.0	2
	5	Int.	●	MZS1030LB	85.9	89.9	150.9	149	1.9	11.0	2
10.4	2	Ext.	●	MZE1040SA	44.9	44.9	90.9	89	1.9	10.4	1
	3	Ext.	●	MZE1040MA	67.9	67.9	113.9	112	1.9	10.4	1
	3	Int.	●	MZS1040MB	54.4	56.9	117.9	116	1.9	11.0	2
	5	Int.	●	MZS1040LB	85.9	89.9	150.9	149	1.9	11.0	2
10.5	2	Ext.	●	MZE1050SA	44.9	44.9	90.9	89	1.9	10.5	1
	3	Ext.	●	MZE1050MA	67.9	67.9	113.9	112	1.9	10.5	1
	3	Int.	●	MZS1050MB	54.4	56.9	117.9	116	1.9	11.0	2
	5	Int.	●	MZS1050LB	85.9	89.9	150.9	149	1.9	11.0	2
10.6	2	Ext.	●	MZE1060SA	44.9	44.9	90.9	89	1.9	10.6	1
	3	Ext.	●	MZE1060MA	69.9	69.9	115.9	114	1.9	10.6	1
	3	Int.	●	MZS1060MB	56.9	56.9	117.9	116	1.9	11.0	2
	5	Int.	●	MZS1060LB	89.9	89.9	150.9	149	1.9	11.0	2
10.7	2	Ext.	●	MZE1070SA	48.9	48.9	96.9	95	1.9	10.7	1
	3	Ext.	●	MZE1070MA	69.9	69.9	115.9	114	1.9	10.7	1
	3	Int.	●	MZS1070MB	56.9	56.9	117.9	116	1.9	11.0	2
	5	Int.	●	MZS1070LB	89.9	89.9	150.9	149	1.9	11.0	2
10.8	2	Ext.	●	MZE1080SA	49.0	49.0	97.0	95	2.0	10.8	1
	3	Ext.	●	MZE1080MA	70.0	70.0	116.0	114	2.0	10.8	1
	3	Int.	●	MZS1080MB	57.0	57.0	118.0	116	2.0	11.0	2
	5	Int.	●	MZS1080LB	90.0	90.0	151.0	149	2.0	11.0	2
10.9	2	Ext.	●	MZE1090SA	49.0	49.0	97.0	95	2.0	10.9	1
	3	Ext.	●	MZE1090MA	70.0	70.0	116.0	114	2.0	10.9	1
	3	Int.	●	MZS1090MB	57.0	57.0	118.0	116	2.0	11.0	2
	5	Int.	●	MZS1090LB	90.0	90.0	151.0	149	2.0	11.0	2
11.0	2	Ext.	●	MZE1100SA	49.0	49.0	97.0	95	2.0	11.0	1
	3	Ext.	●	MZE1100MA	70.0	70.0	116.0	114	2.0	11.0	1
	3	Int.	●	MZS1100MB	57.0	57.0	118.0	116	2.0	11.0	2
	5	Int.	●	MZS1100LB	90.0	90.0	151.0	149	2.0	11.0	2
11.1	2	Ext.	●	MZE1110SA	49.0	49.0	97.0	95	2.0	11.1	1
	3	Ext.	●	MZE1110MA	73.0	73.0	120.0	118	2.0	11.1	1
	3	Int.	●	MZS1110MB	59.5	62.0	124.0	122	2.0	12.0	2
	5	Int.	●	MZS1110LB	94.0	98.0	160.0	158	2.0	12.0	2
11.2	2	Ext.	●	MZE1120SA	49.0	49.0	97.0	95	2.0	11.2	1
	3	Ext.	●	MZE1120MA	73.0	73.0	120.0	118	2.0	11.2	1
	3	Int.	●	MZS1120MB	59.5	62.0	124.0	122	2.0	12.0	2
	5	Int.	●	MZS1120LB	94.0	98.0	160.0	158	2.0	12.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

● : Estoque mantido.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
11.3	2	Ext.	●	MZE1130SA	49.1	49.1	97.1	95	2.1	11.3	1
	3	Ext.	●	MZE1130MA	73.1	73.1	120.1	118	2.1	11.3	1
	3	Int.	●	MZS1130MB	59.6	62.1	124.1	122	2.1	12.0	2
	5	Int.	●	MZS1130LB	94.1	98.1	160.1	158	2.1	12.0	2
11.4	2	Ext.	●	MZE1140SA	49.1	49.1	97.1	95	2.1	11.4	1
	3	Ext.	●	MZE1140MA	73.1	73.1	120.1	118	2.1	11.4	1
	3	Int.	●	MZS1140MB	59.6	62.1	124.1	122	2.1	12.0	2
	5	Int.	●	MZS1140LB	94.1	98.1	160.1	158	2.1	12.0	2
11.5	2	Ext.	●	MZE1150SA	49.1	49.1	97.1	95	2.1	11.5	1
	3	Ext.	●	MZE1150MA	73.1	73.1	120.1	118	2.1	11.5	1
	3	Int.	●	MZS1150MB	59.6	62.1	124.1	122	2.1	12.0	2
	5	Int.	●	MZS1150LB	94.1	98.1	160.1	158	2.1	12.0	2
11.6	2	Ext.	●	MZE1160SA	49.1	49.1	97.1	95	2.1	11.6	1
	3	Ext.	●	MZE1160MA	75.1	75.1	123.1	121	2.1	11.6	1
	3	Int.	●	MZS1160MB	62.1	62.1	124.1	122	2.1	12.0	2
	5	Int.	●	MZS1160LB	98.1	98.1	160.1	158	2.1	12.0	2
11.7	2	Ext.	●	MZE1170SA	49.1	49.1	97.1	95	2.1	11.7	1
	3	Ext.	●	MZE1170MA	75.1	75.1	123.1	121	2.1	11.7	1
	3	Int.	●	MZS1170MB	62.1	62.1	124.1	122	2.1	12.0	2
	5	Int.	●	MZS1170LB	98.1	98.1	160.1	158	2.1	12.0	2
11.8	2	Ext.	●	MZE1180SA	49.1	49.1	97.1	95	2.1	11.8	1
	3	Ext.	●	MZE1180MA	75.1	75.1	123.1	121	2.1	11.8	1
	3	Int.	●	MZS1180MB	62.1	62.1	124.1	122	2.1	12.0	2
	5	Int.	●	MZS1180LB	98.1	98.1	160.1	158	2.1	12.0	2
11.9	2	Ext.	●	MZE1190SA	53.2	53.2	104.2	102	2.2	11.9	1
	3	Ext.	●	MZE1190MA	75.2	75.2	123.2	121	2.2	11.9	1
	3	Int.	●	MZS1190MB	62.2	62.2	124.2	122	2.2	12.0	2
	5	Int.	●	MZS1190LB	98.2	98.2	160.2	158	2.2	12.0	2
12.0	2	Ext.	●	MZE1200SA	53.2	53.2	104.2	102	2.2	12.0	1
	3	Ext.	●	MZE1200MA	75.2	75.2	123.2	121	2.2	12.0	1
	3	Int.	●	MZS1200MB	62.2	62.2	124.2	122	2.2	12.0	2
	5	Int.	●	MZS1200LB	98.2	98.2	160.2	158	2.2	12.0	2
12.1	2	Ext.	●	MZE1210SA	53.2	53.2	104.2	102	2.2	12.1	1
	3	Ext.	●	MZE1210MA	78.2	78.2	137.2	135	2.2	12.1	1
	3	Int.	●	MZS1210MB	64.7	67.2	130.2	128	2.2	13.0	2
	5	Int.	●	MZS1210LB	102.2	106.2	169.2	167	2.2	13.0	2
12.2	2	Ext.	●	MZE1220SA	53.2	53.2	104.2	102	2.2	12.2	1
	3	Ext.	●	MZE1220MA	78.2	78.2	137.2	135	2.2	12.2	1
	3	Int.	●	MZS1220MB	64.7	67.2	130.2	128	2.2	13.0	2
	5	Int.	●	MZS1220LB	102.2	106.2	169.2	167	2.2	13.0	2
12.3	2	Ext.	●	MZE1230SA	53.2	53.2	104.2	102	2.2	12.3	1
	3	Ext.	●	MZE1230MA	78.2	78.2	137.2	135	2.2	12.3	1
	3	Int.	●	MZS1230MB	64.7	67.2	130.2	128	2.2	13.0	2
	5	Int.	●	MZS1230LB	102.2	106.2	169.2	167	2.2	13.0	2
12.4	2	Ext.	●	MZE1240SA	53.3	53.3	104.3	102	2.3	12.4	1
	3	Ext.	●	MZE1240MA	78.3	78.3	137.3	135	2.3	12.4	1
	3	Int.	●	MZS1240MB	64.8	67.3	130.3	128	2.3	13.0	2
	5	Int.	●	MZS1240LB	102.3	106.3	169.3	167	2.3	13.0	2

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

METAL DURO

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
12.5	2	Ext.	●	MZE1250SA	53.3	53.3	104.3	102	2.3	12.5	1
	3	Ext.	●	MZE1250MA	78.3	78.3	137.3	135	2.3	12.5	1
	3	Int.	●	MZS1250MB	64.8	67.3	130.3	128	2.3	13.0	2
	5	Int.	●	MZS1250LB	102.3	106.3	169.3	167	2.3	13.0	2
12.6	2	Ext.	●	MZE1260SA	53.3	53.3	104.3	102	2.3	12.6	1
	3	Ext.	●	MZE1260MA	80.3	80.3	139.3	137	2.3	12.6	1
	3	Int.	●	MZS1260MB	67.3	67.3	130.3	128	2.3	13.0	2
	5	Int.	●	MZS1260LB	106.3	106.3	169.3	167	2.3	13.0	2
12.7	2	Ext.	●	MZE1270SA	53.3	53.3	104.3	102	2.3	12.7	1
	3	Ext.	●	MZE1270MA	80.3	80.3	139.3	137	2.3	12.7	1
	3	Int.	●	MZS1270MB	67.3	67.3	130.3	128	2.3	13.0	2
	5	Int.	●	MZS1270LB	106.3	106.3	169.3	167	2.3	13.0	2
12.8	2	Ext.	●	MZE1280SA	53.3	53.3	104.3	102	2.3	12.8	1
	3	Ext.	●	MZE1280MA	80.3	80.3	139.3	137	2.3	12.8	1
	3	Int.	●	MZS1280MB	67.3	67.3	130.3	128	2.3	13.0	2
	5	Int.	●	MZS1280LB	106.3	106.3	169.3	167	2.3	13.0	2
12.9	2	Ext.	●	MZE1290SA	53.3	53.3	104.3	102	2.3	12.9	1
	3	Ext.	●	MZE1290MA	80.3	80.3	139.3	137	2.3	12.9	1
	3	Int.	●	MZS1290MB	67.3	67.3	130.3	128	2.3	13.0	2
	5	Int.	●	MZS1290LB	106.3	106.3	169.3	167	2.3	13.0	2
13.0	2	Ext.	●	MZE1300SA	53.4	53.4	104.4	102	2.4	13.0	1
	3	Ext.	●	MZE1300MA	80.4	80.4	139.4	137	2.4	13.0	1
	3	Int.	●	MZS1300MB	67.4	67.4	130.4	128	2.4	13.0	2
	5	Int.	●	MZS1300LB	106.4	106.4	169.4	167	2.4	13.0	2
13.1	2	Ext.	●	MZE1310SA	53.4	53.4	104.4	102	2.4	13.1	1
	3	Ext.	●	MZE1310MA	86.4	86.4	146.4	144	2.4	13.1	1
	3	Int.	●	MZS1310MB	69.9	72.4	136.4	134	2.4	14.0	2
	5	Int.	●	MZS1310LB	110.4	114.4	178.4	176	2.4	14.0	2
13.2	2	Ext.	●	MZE1320SA	53.4	53.4	104.4	102	2.4	13.2	1
	3	Ext.	●	MZE1320MA	86.4	86.4	146.4	144	2.4	13.2	1
	3	Int.	●	MZS1320MB	69.9	72.4	136.4	134	2.4	14.0	2
	5	Int.	●	MZS1320LB	110.4	114.4	178.4	176	2.4	14.0	2
13.3	2	Ext.	●	MZE1330SA	56.4	56.4	109.4	107	2.4	13.3	1
	3	Ext.	●	MZE1330MA	86.4	86.4	146.4	144	2.4	13.3	1
	3	Int.	●	MZS1330MB	69.9	72.4	136.4	134	2.4	14.0	2
	5	Int.	●	MZS1330LB	110.4	114.4	178.4	176	2.4	14.0	2
13.4	2	Ext.	●	MZE1340SA	56.4	56.4	109.4	107	2.4	13.4	1
	3	Ext.	●	MZE1340MA	86.4	86.4	146.4	144	2.4	13.4	1
	3	Int.	●	MZS1340MB	69.9	72.4	136.4	134	2.4	14.0	2
	5	Int.	●	MZS1340LB	110.4	114.4	178.4	176	2.4	14.0	2
13.5	2	Ext.	●	MZE1350SA	56.5	56.5	109.5	107	2.5	13.5	1
	3	Ext.	●	MZE1350MA	86.5	86.5	146.5	144	2.5	13.5	1
	3	Int.	●	MZS1350MB	70.0	72.5	136.5	134	2.5	14.0	2
	5	Int.	●	MZS1350LB	110.5	114.5	178.5	176	2.5	14.0	2
13.6	2	Ext.	●	MZE1360SA	56.5	56.5	109.5	107	2.5	13.6	1
	3	Ext.	●	MZE1360MA	88.5	88.5	149.5	147	2.5	13.6	1
	3	Int.	●	MZS1360MB	72.5	72.5	136.5	134	2.5	14.0	2
	5	Int.	●	MZS1360LB	114.5	114.5	178.5	176	2.5	14.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

● : Estoque mantido. □ : Sem estoque, produzido somente por pedido.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
13.7	2	Ext.	●	MZE1370SA	56.5	56.5	109.5	107	2.5	13.7	1
	3	Ext.	●	MZE1370MA	88.5	88.5	149.5	147	2.5	13.7	1
	3	Int.	●	MZS1370MB	72.5	72.5	136.5	134	2.5	14.0	2
	5	Int.	●	MZS1370LB	114.5	114.5	178.5	176	2.5	14.0	2
13.8	2	Ext.	●	MZE1380SA	56.5	56.5	109.5	107	2.5	13.8	1
	3	Ext.	●	MZE1380MA	88.5	88.5	149.5	147	2.5	13.8	1
	3	Int.	●	MZS1380MB	72.5	72.5	136.5	134	2.5	14.0	2
	5	Int.	●	MZS1380LB	114.5	114.5	178.5	176	2.5	14.0	2
13.9	2	Ext.	●	MZE1390SA	56.5	56.5	109.5	107	2.5	13.9	1
	3	Ext.	●	MZE1390MA	88.5	88.5	149.5	147	2.5	13.9	1
	3	Int.	●	MZS1390MB	72.5	72.5	136.5	134	2.5	14.0	2
	5	Int.	●	MZS1390LB	114.5	114.5	178.5	176	2.5	14.0	2
14.0	2	Ext.	●	MZE1400SA	56.5	56.5	109.5	107	2.5	14.0	1
	3	Ext.	●	MZE1400MA	88.5	88.5	149.5	147	2.5	14.0	1
	3	Int.	●	MZS1400MB	72.5	72.5	136.5	134	2.5	14.0	2
	5	Int.	●	MZS1400LB	114.5	114.5	178.5	176	2.5	14.0	2
14.1	2	Ext.	●	MZE1410SA	58.6	58.6	113.6	111	2.6	14.1	1
	3	Ext.	●	MZE1410MA	91.6	91.6	153.6	151	2.6	14.1	1
	3	Int.	●	MZS1410MB	75.1	77.6	142.6	140	2.6	15.0	2
	5	Int.	●	MZS1410LB	118.6	122.6	187.6	185	2.6	15.0	2
14.2	2	Ext.	●	MZE1420SA	58.6	58.6	113.6	111	2.6	14.2	1
	3	Ext.	●	MZE1420MA	91.6	91.6	153.6	151	2.6	14.2	1
	3	Int.	●	MZS1420MB	75.1	77.6	142.6	140	2.6	15.0	2
	5	Int.	●	MZS1420LB	118.6	122.6	187.6	185	2.6	15.0	2
14.3	2	Ext.	□	MZE1430SA	58.6	58.6	113.6	111	2.6	14.3	1
	3	Ext.	●	MZE1430MA	91.6	91.6	153.6	151	2.6	14.3	1
	3	Int.	●	MZS1430MB	75.1	77.6	142.6	140	2.6	15.0	2
	5	Int.	●	MZS1430LB	118.6	122.6	187.6	185	2.6	15.0	2
14.4	2	Ext.	□	MZE1440SA	58.6	58.6	113.6	111	2.6	14.4	1
	3	Ext.	●	MZE1440MA	91.6	91.6	153.6	151	2.6	14.4	1
	3	Int.	●	MZS1440MB	75.1	77.6	142.6	140	2.6	15.0	2
	5	Int.	●	MZS1440LB	118.6	122.6	187.6	185	2.6	15.0	2
14.5	2	Ext.	●	MZE1450SA	58.6	58.6	113.6	111	2.6	14.5	1
	3	Ext.	●	MZE1450MA	91.6	91.6	153.6	151	2.6	14.5	1
	3	Int.	●	MZS1450MB	75.1	77.6	142.6	140	2.6	15.0	2
	5	Int.	●	MZS1450LB	118.6	122.6	187.6	185	2.6	15.0	2
14.6	2	Ext.	□	MZE1460SA	58.7	58.7	113.7	111	2.7	14.6	1
	3	Ext.	●	MZE1460MA	93.7	93.7	155.7	153	2.7	14.6	1
	3	Int.	●	MZS1460MB	77.7	77.7	142.7	140	2.7	15.0	2
	5	Int.	●	MZS1460LB	122.7	122.7	187.7	185	2.7	15.0	2
14.7	2	Ext.	□	MZE1470SA	58.7	58.7	113.7	111	2.7	14.7	1
	3	Ext.	●	MZE1470MA	93.7	93.7	155.7	153	2.7	14.7	1
	3	Int.	●	MZS1470MB	77.7	77.7	142.7	140	2.7	15.0	2
	5	Int.	●	MZS1470LB	122.7	122.7	187.7	185	2.7	15.0	2
14.8	2	Ext.	□	MZE1480SA	58.7	58.7	113.7	111	2.7	14.8	1
	3	Ext.	●	MZE1480MA	93.7	93.7	155.7	153	2.7	14.8	1
	3	Int.	●	MZS1480MB	77.7	77.7	142.7	140	2.7	15.0	2
	5	Int.	●	MZS1480LB	122.7	122.7	187.7	185	2.7	15.0	2

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

METAL DURO

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
14.9	2	Ext.	□	MZE1490SA	58.7	58.7	113.7	111	2.7	14.9	1
	3	Ext.	●	MZE1490MA	93.7	93.7	155.7	153	2.7	14.9	1
	3	Int.	●	MZS1490MB	77.7	77.7	142.7	140	2.7	15.0	2
	5	Int.	●	MZS1490LB	122.7	122.7	187.7	185	2.7	15.0	2
15.0	2	Ext.	●	MZE1500SA	58.7	58.7	113.7	111	2.7	15.0	1
	3	Ext.	●	MZE1500MA	93.7	93.7	155.7	153	2.7	15.0	1
	3	Int.	●	MZS1500MB	77.7	77.7	142.7	140	2.7	15.0	2
	5	Int.	●	MZS1500LB	122.7	122.7	187.7	185	2.7	15.0	2
15.1	2	Ext.	□	MZE1510SA	60.7	60.7	117.7	115	2.7	15.1	1
	3	Ext.	●	MZE1510MA	96.7	96.7	159.7	157	2.7	15.1	1
	3	Int.	●	MZS1510MB	80.2	82.7	147.7	145	2.7	16.0	2
	5	Int.	●	MZS1510LB	126.7	130.7	195.7	193	2.7	16.0	2
15.2	2	Ext.	●	MZE1520SA	60.8	60.8	117.8	115	2.8	15.2	1
	3	Ext.	●	MZE1520MA	96.8	96.8	159.8	157	2.8	15.2	1
	3	Int.	●	MZS1520MB	80.3	82.8	147.8	145	2.8	16.0	2
	5	Int.	●	MZS1520LB	126.8	130.8	195.8	193	2.8	16.0	2
15.3	2	Ext.	□	MZE1530SA	60.8	60.8	117.8	115	2.8	15.3	1
	3	Ext.	●	MZE1530MA	96.8	96.8	159.8	157	2.8	15.3	1
	3	Int.	●	MZS1530MB	80.3	82.8	147.8	145	2.8	16.0	2
	5	Int.	●	MZS1530LB	126.8	130.8	195.8	193	2.8	16.0	2
15.4	2	Ext.	□	MZE1540SA	60.8	60.8	117.8	115	2.8	15.4	1
	3	Ext.	●	MZE1540MA	96.8	96.8	159.8	157	2.8	15.4	1
	3	Int.	●	MZS1540MB	80.3	82.8	147.8	145	2.8	16.0	2
	5	Int.	●	MZS1540LB	126.8	130.8	195.8	193	2.8	16.0	2
15.5	2	Ext.	●	MZE1550SA	60.8	60.8	117.8	115	2.8	15.5	1
	3	Ext.	●	MZE1550MA	96.8	96.8	159.8	157	2.8	15.5	1
	3	Int.	●	MZS1550MB	80.3	82.8	147.8	145	2.8	16.0	2
	5	Int.	●	MZS1550LB	126.8	130.8	195.8	193	2.8	16.0	2
15.6	2	Ext.	□	MZE1560SA	60.8	60.8	117.8	115	2.8	15.6	1
	3	Ext.	●	MZE1560MA	98.8	98.8	162.8	160	2.8	15.6	1
	3	Int.	●	MZS1560MB	82.8	82.8	147.8	145	2.8	16.0	2
	5	Int.	●	MZS1560LB	130.8	130.8	195.8	193	2.8	16.0	2
15.7	2	Ext.	□	MZE1570SA	60.9	60.9	117.9	115	2.9	15.7	1
	3	Ext.	●	MZE1570MA	98.9	98.9	162.9	160	2.9	15.7	1
	3	Int.	●	MZS1570MB	82.9	82.9	147.9	145	2.9	16.0	2
	5	Int.	●	MZS1570LB	130.9	130.9	195.9	193	2.9	16.0	2
15.8	2	Ext.	□	MZE1580SA	60.9	60.9	117.9	115	2.9	15.8	1
	3	Ext.	●	MZE1580MA	98.9	98.9	162.9	160	2.9	15.8	1
	3	Int.	●	MZS1580MB	82.9	82.9	147.9	145	2.9	16.0	2
	5	Int.	●	MZS1580LB	130.9	130.9	195.9	193	2.9	16.0	2
15.9	2	Ext.	□	MZE1590SA	60.9	60.9	117.9	115	2.9	15.9	1
	3	Ext.	●	MZE1590MA	98.9	98.9	162.9	160	2.9	15.9	1
	3	Int.	●	MZS1590MB	82.9	82.9	147.9	145	2.9	16.0	2
	5	Int.	●	MZS1590LB	130.9	130.9	195.9	193	2.9	16.0	2
16.0	2	Ext.	●	MZE1600SA	60.9	60.9	117.9	115	2.9	16.0	1
	3	Ext.	●	MZE1600MA	98.9	98.9	162.9	160	2.9	16.0	1
	3	Int.	●	MZS1600MB	82.9	82.9	147.9	145	2.9	16.0	2
	5	Int.	●	MZS1600LB	130.9	130.9	195.9	193	2.9	16.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

● : Estoque mantido. □ : Sem estoque, produzido somente por pedido.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
16.1	2	Ext.	<input type="checkbox"/>	MZE1610SA	62.9	62.9	121.9	119	2.9	16.1	1
	3	Ext.	<input type="checkbox"/>	MZE1610MA	104.9	104.9	169.9	167	2.9	16.1	1
	3	Int.	<input type="checkbox"/>	MZS1610MB	85.4	87.9	152.9	150	2.9	17.0	2
	5	Int.	<input type="checkbox"/>	MZS1610LB	134.9	138.9	203.9	201	2.9	17.0	2
16.2	2	Ext.	<input checked="" type="checkbox"/>	MZE1620SA	62.9	62.9	121.9	119	2.9	16.2	1
	3	Ext.	<input type="checkbox"/>	MZE1620MA	104.9	104.9	169.9	167	2.9	16.2	1
	3	Int.	<input type="checkbox"/>	MZS1620MB	85.4	87.9	152.9	150	2.9	17.0	2
	5	Int.	<input type="checkbox"/>	MZS1620LB	134.9	138.9	203.9	201	2.9	17.0	2
16.3	2	Ext.	<input checked="" type="checkbox"/>	MZE1630SA	63.0	63.0	122.0	119	3.0	16.3	1
	3	Ext.	<input type="checkbox"/>	MZE1630MA	105.0	105.0	170.0	167	3.0	16.3	1
	3	Int.	<input type="checkbox"/>	MZS1630MB	85.5	88.0	153.0	150	3.0	17.0	2
	5	Int.	<input type="checkbox"/>	MZS1630LB	135.0	139.0	204.0	201	3.0	17.0	2
16.4	2	Ext.	<input type="checkbox"/>	MZE1640SA	63.0	63.0	122.0	119	3.0	16.4	1
	3	Ext.	<input type="checkbox"/>	MZE1640MA	105.0	105.0	170.0	167	3.0	16.4	1
	3	Int.	<input type="checkbox"/>	MZS1640MB	85.5	88.0	153.0	150	3.0	17.0	2
	5	Int.	<input type="checkbox"/>	MZS1640LB	135.0	139.0	204.0	201	3.0	17.0	2
16.5	2	Ext.	<input checked="" type="checkbox"/>	MZE1650SA	63.0	63.0	122.0	119	3.0	16.5	1
	3	Ext.	<input checked="" type="checkbox"/>	MZE1650MA	105.0	105.0	170.0	167	3.0	16.5	1
	3	Int.	<input checked="" type="checkbox"/>	MZS1650MB	85.5	88.0	153.0	150	3.0	17.0	2
	5	Int.	<input checked="" type="checkbox"/>	MZS1650LB	135.0	139.0	204.0	201	3.0	17.0	2
16.6	2	Ext.	<input type="checkbox"/>	MZE1660SA	63.0	63.0	122.0	119	3.0	16.6	1
	3	Ext.	<input type="checkbox"/>	MZE1660MA	105.0	105.0	170.0	167	3.0	16.6	1
	3	Int.	<input type="checkbox"/>	MZS1660MB	88.0	88.0	153.0	150	3.0	17.0	2
	5	Int.	<input type="checkbox"/>	MZS1660LB	139.0	139.0	204.0	201	3.0	17.0	2
16.7	2	Ext.	<input type="checkbox"/>	MZE1670SA	63.0	63.0	122.0	119	3.0	16.7	1
	3	Ext.	<input type="checkbox"/>	MZE1670MA	105.0	105.0	170.0	167	3.0	16.7	1
	3	Int.	<input type="checkbox"/>	MZS1670MB	88.0	88.0	153.0	150	3.0	17.0	2
	5	Int.	<input type="checkbox"/>	MZS1670LB	139.0	139.0	204.0	201	3.0	17.0	2
16.8	2	Ext.	<input type="checkbox"/>	MZE1680SA	63.1	63.1	122.1	119	3.1	16.8	1
	3	Ext.	<input type="checkbox"/>	MZE1680MA	105.1	105.1	170.1	167	3.1	16.8	1
	3	Int.	<input type="checkbox"/>	MZS1680MB	88.1	88.1	153.1	150	3.1	17.0	2
	5	Int.	<input type="checkbox"/>	MZS1680LB	139.1	139.1	204.1	201	3.1	17.0	2
16.9	2	Ext.	<input type="checkbox"/>	MZE1690SA	63.1	63.1	122.1	119	3.1	16.9	1
	3	Ext.	<input type="checkbox"/>	MZE1690MA	105.1	105.1	170.1	167	3.1	16.9	1
	3	Int.	<input type="checkbox"/>	MZS1690MB	88.1	88.1	153.1	150	3.1	17.0	2
	5	Int.	<input type="checkbox"/>	MZS1690LB	139.1	139.1	204.1	201	3.1	17.0	2
17.0	2	Ext.	<input checked="" type="checkbox"/>	MZE1700SA	63.1	63.1	122.1	119	3.1	17.0	1
	3	Ext.	<input checked="" type="checkbox"/>	MZE1700MA	105.1	105.1	170.1	167	3.1	17.0	1
	3	Int.	<input checked="" type="checkbox"/>	MZS1700MB	88.1	88.1	153.1	150	3.1	17.0	2
	5	Int.	<input checked="" type="checkbox"/>	MZS1700LB	139.1	139.1	204.1	201	3.1	17.0	2
17.1	2	Ext.	<input type="checkbox"/>	MZE1710SA	65.1	65.1	126.1	123	3.1	17.1	1
	3	Ext.	<input type="checkbox"/>	MZE1710MA	105.1	105.1	170.1	167	3.1	17.1	1
	3	Int.	<input type="checkbox"/>	MZS1710MB	90.6	93.1	158.1	155	3.1	18.0	2
	5	Int.	<input type="checkbox"/>	MZS1710LB	143.1	147.1	212.1	209	3.1	18.0	2
17.2	2	Ext.	<input type="checkbox"/>	MZE1720SA	65.1	65.1	126.1	123	3.1	17.2	1
	3	Ext.	<input type="checkbox"/>	MZE1720MA	105.1	105.1	170.1	167	3.1	17.2	1
	3	Int.	<input type="checkbox"/>	MZS1720MB	90.6	93.1	158.1	155	3.1	18.0	2
	5	Int.	<input type="checkbox"/>	MZS1720LB	143.1	147.1	212.1	209	3.1	18.0	2

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

METAL DURO

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
17.3	2	Ext.	<input type="checkbox"/>	MZE1730SA	65.1	65.1	126.1	123	3.1	17.3	1
	3	Ext.	<input type="checkbox"/>	MZE1730MA	105.1	105.1	170.1	167	3.1	17.3	1
	3	Int.	<input type="checkbox"/>	MZS1730MB	90.6	93.1	158.1	155	3.1	18.0	2
	5	Int.	<input type="checkbox"/>	MZS1730LB	143.1	147.1	212.1	209	3.1	18.0	2
17.4	2	Ext.	<input type="checkbox"/>	MZE1740SA	65.2	65.2	126.2	123	3.2	17.4	1
	3	Ext.	<input type="checkbox"/>	MZE1740MA	105.2	105.2	170.2	167	3.2	17.4	1
	3	Int.	<input type="checkbox"/>	MZS1740MB	90.7	93.2	158.2	155	3.2	18.0	2
	5	Int.	<input type="checkbox"/>	MZS1740LB	143.2	147.2	212.2	209	3.2	18.0	2
17.5	2	Ext.	●	MZE1750SA	65.2	65.2	126.2	123	3.2	17.5	1
	3	Ext.	●	MZE1750MA	105.2	105.2	170.2	167	3.2	17.5	1
	3	Int.	●	MZS1750MB	90.7	93.2	158.2	155	3.2	18.0	2
	5	Int.	●	MZS1750LB	143.2	147.2	212.2	209	3.2	18.0	2
17.6	2	Ext.	<input type="checkbox"/>	MZE1760SA	65.2	65.2	126.2	123	3.2	17.6	1
	3	Ext.	<input type="checkbox"/>	MZE1760MA	105.2	105.2	170.2	167	3.2	17.6	1
	3	Int.	<input type="checkbox"/>	MZS1760MB	93.2	93.2	158.2	155	3.2	18.0	2
	5	Int.	<input type="checkbox"/>	MZS1760LB	147.2	147.2	212.2	209	3.2	18.0	2
17.7	2	Ext.	<input type="checkbox"/>	MZE1770SA	65.2	65.2	126.2	123	3.2	17.7	1
	3	Ext.	<input type="checkbox"/>	MZE1770MA	105.2	105.2	170.2	167	3.2	17.7	1
	3	Int.	<input type="checkbox"/>	MZS1770MB	93.2	93.2	158.2	155	3.2	18.0	2
	5	Int.	<input type="checkbox"/>	MZS1770LB	147.2	147.2	212.2	209	3.2	18.0	2
17.8	2	Ext.	●	MZE1780SA	65.2	65.2	126.2	123	3.2	17.8	1
	3	Ext.	<input type="checkbox"/>	MZE1780MA	105.2	105.2	170.2	167	3.2	17.8	1
	3	Int.	<input type="checkbox"/>	MZS1780MB	93.2	93.2	158.2	155	3.2	18.0	2
	5	Int.	<input type="checkbox"/>	MZS1780LB	147.2	147.2	212.2	209	3.2	18.0	2
17.9	2	Ext.	<input type="checkbox"/>	MZE1790SA	65.3	65.3	126.3	123	3.3	17.9	1
	3	Ext.	<input type="checkbox"/>	MZE1790MA	105.3	105.3	170.3	167	3.3	17.9	1
	3	Int.	<input type="checkbox"/>	MZS1790MB	93.3	93.3	158.3	155	3.3	18.0	2
	5	Int.	<input type="checkbox"/>	MZS1790LB	147.3	147.3	212.3	209	3.3	18.0	2
18.0	2	Ext.	●	MZE1800SA	65.3	65.3	126.3	123	3.3	18.0	1
	3	Ext.	●	MZE1800MA	105.3	105.3	170.3	167	3.3	18.0	1
	3	Int.	●	MZS1800MB	93.3	93.3	158.3	155	3.3	18.0	2
	5	Int.	●	MZS1800LB	147.3	147.3	212.3	209	3.3	18.0	2
18.1	2	Ext.	<input type="checkbox"/>	MZE1810SA	67.3	67.3	130.3	127	3.3	18.1	1
	3	Ext.	<input type="checkbox"/>	MZE1810MA	117.3	117.3	182.3	179	3.3	18.1	1
	3	Int.	<input type="checkbox"/>	MZS1810MB	95.8	98.3	163.3	160	3.3	19.0	2
	5	Int.	<input type="checkbox"/>	MZS1810LB	151.3	155.3	220.3	217	3.3	19.0	2
18.2	2	Ext.	<input type="checkbox"/>	MZE1820SA	67.3	67.3	130.3	127	3.3	18.2	1
	3	Ext.	<input type="checkbox"/>	MZE1820MA	117.3	117.3	182.3	179	3.3	18.2	1
	3	Int.	<input type="checkbox"/>	MZS1820MB	95.8	98.3	163.3	160	3.3	19.0	2
	5	Int.	<input type="checkbox"/>	MZS1820LB	151.3	155.3	220.3	217	3.3	19.0	2
18.3	2	Ext.	<input type="checkbox"/>	MZE1830SA	67.3	67.3	130.3	127	3.3	18.3	1
	3	Ext.	<input type="checkbox"/>	MZE1830MA	117.3	117.3	182.3	179	3.3	18.3	1
	3	Int.	<input type="checkbox"/>	MZS1830MB	95.8	98.3	163.3	160	3.3	19.0	2
	5	Int.	<input type="checkbox"/>	MZS1830LB	151.3	155.3	220.3	217	3.3	19.0	2
18.4	2	Ext.	<input type="checkbox"/>	MZE1840SA	67.3	67.3	130.3	127	3.3	18.4	1
	3	Ext.	<input type="checkbox"/>	MZE1840MA	117.3	117.3	182.3	179	3.3	18.4	1
	3	Int.	<input type="checkbox"/>	MZS1840MB	95.8	98.3	163.3	160	3.3	19.0	2
	5	Int.	<input type="checkbox"/>	MZS1840LB	151.3	155.3	220.3	217	3.3	19.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

● : Estoque mantido. □ : Sem estoque, produzido somente por pedido.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
18.5	2	Ext.	●	MZE1850SA	67.4	67.4	130.4	127	3.4	18.5	1
	3	Ext.	●	MZE1850MA	117.4	117.4	182.4	179	3.4	18.5	1
	3	Int.	●	MZS1850MB	95.9	98.4	163.4	160	3.4	19.0	2
	5	Int.	●	MZS1850LB	151.4	155.4	220.4	217	3.4	19.0	2
18.6	2	Ext.	□	MZE1860SA	67.4	67.4	130.4	127	3.4	18.6	1
	3	Ext.	□	MZE1860MA	117.4	117.4	182.4	179	3.4	18.6	1
	3	Int.	□	MZS1860MB	98.4	98.4	163.4	160	3.4	19.0	2
	5	Int.	□	MZS1860LB	155.4	155.4	220.4	217	3.4	19.0	2
18.7	2	Ext.	□	MZE1870SA	67.4	67.4	130.4	127	3.4	18.7	1
	3	Ext.	□	MZE1870MA	117.4	117.4	182.4	179	3.4	18.7	1
	3	Int.	□	MZS1870MB	98.4	98.4	163.4	160	3.4	19.0	2
	5	Int.	□	MZS1870LB	155.4	155.4	220.4	217	3.4	19.0	2
18.8	2	Ext.	□	MZE1880SA	67.4	67.4	130.4	127	3.4	18.8	1
	3	Ext.	□	MZE1880MA	117.4	117.4	182.4	179	3.4	18.8	1
	3	Int.	□	MZS1880MB	98.4	98.4	163.4	160	3.4	19.0	2
	5	Int.	□	MZS1880LB	155.4	155.4	220.4	217	3.4	19.0	2
18.9	2	Ext.	□	MZE1890SA	67.4	67.4	130.4	127	3.4	18.9	1
	3	Ext.	□	MZE1890MA	117.4	117.4	182.4	179	3.4	18.9	1
	3	Int.	□	MZS1890MB	98.4	98.4	163.4	160	3.4	19.0	2
	5	Int.	□	MZS1890LB	155.4	155.4	220.4	217	3.4	19.0	2
19.0	2	Ext.	●	MZE1900SA	67.5	67.5	130.5	127	3.5	19.0	1
	3	Ext.	●	MZE1900MA	117.5	117.5	182.5	179	3.5	19.0	1
	3	Int.	●	MZS1900MB	98.5	98.5	163.5	160	3.5	19.0	2
	5	Int.	●	MZS1900LB	155.5	155.5	220.5	217	3.5	19.0	2
19.1	2	Ext.	□	MZE1910SA	69.5	69.5	134.5	131	3.5	19.1	1
	3	Ext.	□	MZE1910MA	117.5	117.5	182.5	179	3.5	19.1	1
	3	Int.	□	MZS1910MB	101.0	103.5	168.5	165	3.5	20.0	2
	5	Int.	□	MZS1910LB	159.5	163.5	228.5	225	3.5	20.0	2
19.2	2	Ext.	□	MZE1920SA	69.5	69.5	134.5	131	3.5	19.2	1
	3	Ext.	□	MZE1920MA	117.5	117.5	182.5	179	3.5	19.2	1
	3	Int.	□	MZS1920MB	101.0	103.5	168.5	165	3.5	20.0	2
	5	Int.	□	MZS1920LB	159.5	163.5	228.5	225	3.5	20.0	2
19.3	2	Ext.	□	MZE1930SA	69.5	69.5	134.5	131	3.5	19.3	1
	3	Ext.	□	MZE1930MA	117.5	117.5	182.5	179	3.5	19.3	1
	3	Int.	□	MZS1930MB	101.0	103.5	168.5	165	3.5	20.0	2
	5	Int.	□	MZS1930LB	159.5	163.5	228.5	225	3.5	20.0	2
19.4	2	Ext.	□	MZE1940SA	69.5	69.5	134.5	131	3.5	19.4	1
	3	Ext.	□	MZE1940MA	117.5	117.5	182.5	179	3.5	19.4	1
	3	Int.	□	MZS1940MB	101.0	103.5	168.5	165	3.5	20.0	2
	5	Int.	□	MZS1940LB	159.5	163.5	228.5	225	3.5	20.0	2
19.5	2	Ext.	●	MZE1950SA	69.5	69.5	134.5	131	3.5	19.5	1
	3	Ext.	●	MZE1950MA	117.5	117.5	182.5	179	3.5	19.5	1
	3	Int.	●	MZS1950MB	101.0	103.5	168.5	165	3.5	20.0	2
	5	Int.	●	MZS1950LB	159.5	163.5	228.5	225	3.5	20.0	2
19.6	2	Ext.	□	MZE1960SA	69.6	69.6	134.6	131	3.6	19.6	1
	3	Ext.	□	MZE1960MA	117.6	117.6	182.6	179	3.6	19.6	1
	3	Int.	□	MZS1960MB	103.6	103.6	168.6	165	3.6	20.0	2
	5	Int.	□	MZS1960LB	163.6	163.6	228.6	225	3.6	20.0	2

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

METAL DURO

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Estoque VP15TF	Referência para Pedido	Dimensões (mm)						Tipo
					LCF	LH	OAL	LF	PL	DCON	
19.7	2	Ext.	<input type="checkbox"/>	MZE1970SA	69.6	69.6	134.6	131	3.6	19.7	1
	3	Ext.	<input type="checkbox"/>	MZE1970MA	117.6	117.6	182.6	179	3.6	19.7	1
	3	Int.	<input type="checkbox"/>	MZS1970MB	103.6	103.6	168.6	165	3.6	20.0	2
	5	Int.	<input type="checkbox"/>	MZS1970LB	163.6	163.6	228.6	225	3.6	20.0	2
19.8	2	Ext.	<input type="checkbox"/>	MZE1980SA	69.6	69.6	134.6	131	3.6	19.8	1
	3	Ext.	<input type="checkbox"/>	MZE1980MA	117.6	117.6	182.6	179	3.6	19.8	1
	3	Int.	<input type="checkbox"/>	MZS1980MB	103.6	103.6	168.6	165	3.6	20.0	2
	5	Int.	<input type="checkbox"/>	MZS1980LB	163.6	163.6	228.6	225	3.6	20.0	2
19.9	2	Ext.	<input type="checkbox"/>	MZE1990SA	69.6	69.6	134.6	131	3.6	19.9	1
	3	Ext.	<input type="checkbox"/>	MZE1990MA	117.6	117.6	182.6	179	3.6	19.9	1
	3	Int.	<input type="checkbox"/>	MZS1990MB	103.6	103.6	168.6	165	3.6	20.0	2
	5	Int.	<input type="checkbox"/>	MZS1990LB	163.6	163.6	228.6	225	3.6	20.0	2
20.0	2	Ext.	●	MZE2000SA	69.6	69.6	134.6	131	3.6	20.0	1
	3	Ext.	●	MZE2000MA	117.6	117.6	182.6	179	3.6	20.0	1
	3	Int.	●	MZS2000MB	103.6	103.6	168.6	165	3.6	20.0	2
	5	Int.	●	MZS2000LB	163.6	163.6	228.6	225	3.6	20.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

FURAÇÃO

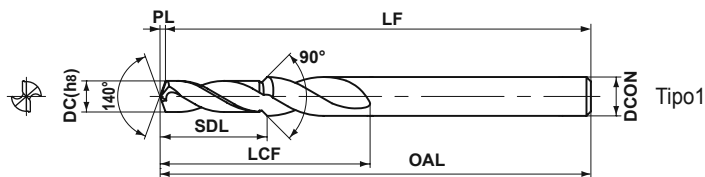
● : Estoque mantido. □ : Sem estoque, produzido somente por pedido.

ESCALONADAS PARA CHANFRAR

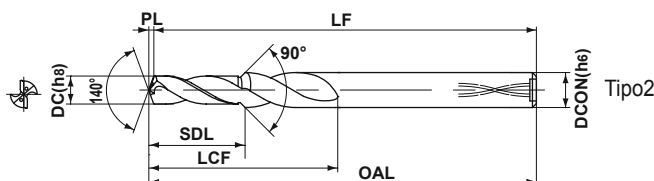
P	M	K	N	S	H
Aço	Aço Inoxidável	Ferro Fundido	Metais Não Ferrosos	Ligas Resist. ao Calor	Aço Endurecido (MZE somente)

	3 < DC ≤ 6	6 < DC ≤ 10	10 < DC ≤ 18
MZE	0 -0.018	0 -0.022	0 -0.027
MZS	0 -0.008	0 -0.009	0 -0.011

MZE (Refrigeração externa)



MZS (Refrigeração interna)



(Nota 1) Broca tipo MZS com f maior que 5mm, possuem um rebaixo no topo da haste para os furos de refrigeração.

(Nota 2) Operação de rebaixo não é possível (somente chanfro).

(Nota 3) Para rosca métrica.

(Nota 4) As brocas MZS são indicadas para uso com mandris de contração térmica.

DC (mm)	Prof. do Furo (l/d)	Refrigeração (Int./Ext.)	Referência para Pedido	Tamanho da Rosca	Estoque VP15TF	Dimensões (mm)						Tipo
						SDL	LCF	OAL	LF	PL	DCON	
3.4	2	Ext.	MZE0340SM04	M4	●	8.6	21.6	73.6	73	0.6	6.0	1
	2	Int.	MZS0340SM04	M4	●	8.6	21.6	73.6	73	0.6	6.0	2
	3	Ext.	MZE0340MM04	M4	●	12.6	25.6	77.6	77	0.6	6.0	1
	3	Int.	MZS0340MM04	M4	●	12.6	25.6	77.6	77	0.6	6.0	2
4.3	2	Ext.	MZE0430SM05	M5	●	10.8	26.8	79.8	79	0.8	7.0	1
	2	Int.	MZS0430SM05	M5	●	10.8	26.8	79.8	79	0.8	7.0	2
	3	Ext.	MZE0430MM05	M5	●	15.8	31.8	84.8	84	0.8	7.0	1
	3	Int.	MZS0430MM05	M5	●	15.8	31.8	84.8	84	0.8	7.0	2
5.1	2	Ext.	MZE0510SM06	M6	●	12.9	30.9	84.9	84	0.9	8.0	1
	2	Int.	MZS0510SM06	M6	●	12.9	30.9	84.9	84	0.9	8.0	2
	3	Ext.	MZE0510MM06	M6	●	18.9	36.9	90.9	90	0.9	8.0	1
	3	Int.	MZS0510MM06	M6	●	18.9	36.9	90.9	90	0.9	8.0	2
6.8	2	Ext.	MZE0680SM08	M8	●	17.2	41.2	97.2	96	1.2	10.0	1
	2	Int.	MZS0680SM08	M8	●	17.2	41.2	97.2	96	1.2	10.0	2
	3	Ext.	MZE0680MM08	M8	●	25.2	49.2	105.2	104	1.2	10.0	1
	3	Int.	MZS0680MM08	M8	●	25.2	49.2	105.2	104	1.2	10.0	2
8.5	2	Ext.	MZE0850SM10	M10	●	21.5	51.5	113.5	112	1.5	12.0	1
	2	Int.	MZS0850SM10	M10	●	21.5	51.5	113.5	112	1.5	12.0	2
	3	Ext.	MZE0850MM10	M10	●	31.5	61.5	123.5	122	1.5	12.0	1
	3	Int.	MZS0850MM10	M10	●	31.5	61.5	123.5	122	1.5	12.0	2
10.3	2	Ext.	MZE1030SM12	M12	●	25.9	61.9	125.9	124	1.9	14.0	1
	2	Int.	MZS1030SM12	M12	●	25.9	61.9	125.9	124	1.9	14.0	2
	3	Ext.	MZE1030MM12	M12	●	37.9	73.9	137.9	136	1.9	14.0	1
	3	Int.	MZS1030MM12	M12	●	37.9	73.9	137.9	136	1.9	14.0	2

(Nota) Por favor entre em contato para qualquer geometria que não conste no catálogo (ex.: diâmetro e comprimento diferente.).

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

ESCALONADAS PARA CHANFRAR

CUIDADOS DE UTILIZAÇÃO

<p>O rebaixo como mostrado acima não é possível devido ao diâmetro maior não possuir guia cilíndrica. Entre em contato se necessitar de brocas conjugadas.</p>	<p>Os cavacos da usinagem do chanfro tendem a ser longos e causarem entupimentos. É recomendado o avanço em passos a fim de que o comprimento dos cavacos sejam reduzidos.</p>	<p>A resistência de corte aumenta no contato inicial com o chanfro. Reduza o avanço neste ponto.</p>	<p>A espessura do chanfro é C1.0 para M4–M6, e C1.5 para M8–M12. Para outras espessuras além das mostradas acima, entre em contato.</p>

TAMANHO DA BROCA E DIÂMETROS DOS FUROS PARA MACHOS

Para Rosca Métrica					Para Rosca Métrica				
Tamanho da Rosca	Tolerância do Diâmetro Inicial da Rosca		Aplicações das brocas MZE/MZS DC	Broca HSS de Referência	Tamanho da Rosca	Tolerância do Diâmetro Inicial da Rosca		Aplicações das brocas MZE/MZS DC	Broca HSS de Referência
	máx.	mín.				máx.	mín.		
M2.5x0.45	2.138	2.013	2.1	2.1	M9x1.25	7.912	7.647	7.8	7.8
M3x0.5	2.599	2.459	2.5	2.5	M10x1.5	8.676	8.376	8.5	8.5
M3.5x0.6	3.010	2.850	2.9	2.9	M11x1.5	9.676	9.376	9.5	9.5
M4x0.7	3.422	3.242	3.4	3.3	M12x1.75	10.441	10.106	10.3	10.3
M4.5x0.75	3.878	3.688	3.8	3.8	M14x2	12.210	11.835	12.0	12.0
M5x0.8	4.334	4.134	4.3	4.2	M16x2	14.210	13.835	14.0	14.0
M6x1	5.153	4.917	5.1	5.0	M18x2.5	15.744	15.294	15.5	15.5
M7x1.25	6.153	5.917	6.1	6.0	M20x2.5	17.744	17.294	17.5	17.5
M8x1.25	6.912	6.647	6.8	6.8	M22x2.5	19.744	19.294	19.5	19.5

(Nota) Furos usinados com broca tipo MZE devem resultar em uma tolerância de +0.01—+0.03mm.

Para machos e em substituição às brocas HSS, uma broca de aproximadamente 0.1mm maior é recomendada.

CONDIÇÕES DE CORTE RECOMENDADAS PARA AS BROCAS MZE/MZS

MZE (Refrigeração externa)

Material	Aço Baixo Carbono ($\leq 180\text{HB}$)		Aço Carbono, Aço Liga (180–280HB)		Aço Carbono, Aço Liga (280–350HB)	
	AISI 1010 etc		AISI 1045, AISI 4140 etc		AISI 4340 etc	
Diâm. DC (mm)	Rotação (min^{-1})	Taxa de Avanço (mín.–máx.) (mm/rot)	Rotação (min^{-1})	Taxa de Avanço (mín.–máx.) (mm/rot)	Rotação (min^{-1})	Taxa de Avanço (mín.–máx.) (mm/rot)
1.0	12700	0.035 (0.020–0.050)	11100	0.035 (0.020–0.050)	9500	0.035 (0.020–0.050)
1.2	10600	0.045 (0.030–0.060)	9200	0.045 (0.030–0.060)	7900	0.045 (0.030–0.060)
1.6	8900	0.055 (0.035–0.080)	7900	0.055 (0.035–0.080)	6900	0.055 (0.035–0.080)
2.0	7100	0.07 (0.040–0.100)	6300	0.07 (0.040–0.100)	5500	0.07 (0.040–0.100)
2.5	5700	0.085 (0.050–0.125)	5000	0.085 (0.050–0.125)	4400	0.085 (0.050–0.125)
3.2	4400	0.1 (0.060–0.13)	3900	0.1 (0.06–0.13)	3400	0.09 (0.06–0.12)
4.0	3500	0.12 (0.080–0.16)	3100	0.12 (0.08–0.16)	2700	0.11 (0.07–0.14)
5.0	2800	0.15 (0.100–0.20)	2500	0.15 (0.10–0.20)	2200	0.14 (0.09–0.18)
6.3	2700	0.2 (0.13–0.26)	2500	0.2 (0.13–0.26)	2200	0.18 (0.11–0.24)
8.0	2100	0.23 (0.18–0.28)	1900	0.23 (0.18–0.28)	1700	0.21 (0.16–0.25)
10.0	1700	0.27 (0.22–0.32)	1500	0.27 (0.22–0.32)	1400	0.23 (0.19–0.27)
12.0	1700	0.31 (0.28–0.34)	1500	0.31 (0.28–0.34)	1400	0.26 (0.23–0.29)
16.0	1300	0.33 (0.28–0.38)	1200	0.33 (0.28–0.38)	1100	0.29 (0.24–0.33)
20.0	1100	0.35 (0.30–0.40)	1000	0.35 (0.30–0.40)	900	0.3 (0.26–0.34)

Material	Aço Inoxidável Austenítico ($\leq 200\text{HB}$)		Ferro Fundido Cinzento ($\leq 350\text{MPa}$)		Ferro Fundido Nodular ($\leq 450\text{MPa}$)	
	AISI 304, AISI 316 etc		DIN GG-30 etc		DIN GGG-45 etc	
Diâm. DC (mm)	Rotação (min^{-1})	Taxa de Avanço (mín.–máx.) (mm/rot)	Rotação (min^{-1})	Taxa de Avanço (mín.–máx.) (mm/rot)	Rotação (min^{-1})	Taxa de Avanço (mín.–máx.) (mm/rot)
1.0	4700	0.03 (0.020–0.044)	14300	0.035 (0.020–0.050)	12700	0.035 (0.020–0.050)
1.2	3900	0.04 (0.030–0.053)	11900	0.045 (0.030–0.060)	10600	0.045 (0.030–0.060)
1.6	3900	0.05 (0.035–0.070)	9900	0.055 (0.035–0.080)	8900	0.055 (0.035–0.080)
2.0	3100	0.06 (0.040–0.080)	7900	0.07 (0.040–0.100)	7100	0.07 (0.040–0.100)
2.5	2500	0.075 (0.050–0.100)	6300	0.085 (0.050–0.125)	5700	0.085 (0.050–0.125)
3.2	1900	0.07 (0.05–0.08)	4900	0.1 (0.06–0.13)	4400	0.1 (0.06–0.13)
4.0	1500	0.08 (0.06–0.10)	3900	0.12 (0.08–0.16)	3500	0.12 (0.08–0.16)
5.0	1200	0.1 (0.07–0.13)	3100	0.15 (0.10–0.20)	2800	0.15 (0.10–0.20)
6.3	1200	0.13 (0.09–0.17)	3000	0.2 (0.13–0.26)	2700	0.2 (0.13–0.26)
8.0	900	0.14 (0.10–0.18)	2300	0.25 (0.18–0.31)	2100	0.23 (0.18–0.28)
10.0	700	0.16 (0.12–0.19)	1900	0.29 (0.22–0.35)	1700	0.27 (0.22–0.32)
12.0	600	0.18 (0.15–0.20)	1800	0.33 (0.28–0.37)	1700	0.31 (0.28–0.34)
16.0	400	0.19 (0.15–0.23)	1300	0.35 (0.28–0.42)	1300	0.33 (0.28–0.38)
20.0	300	0.2 (0.15–0.24)	1100	0.37 (0.30–0.44)	1100	0.35 (0.30–0.40)

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

ESCALONADAS PARA CHANFRAR

METAL DURO

■ MZE (Refrigeração externa)

Material	Ligas de Alumínio (Si<5%)		Ligas Resistentes ao Calor		Aço Endurecido (40—55HRC)	
			Inconel718 etc		AISI H13, JIS SKT4 etc	
Diâm. DC (mm)	Rotação (min ⁻¹)	Taxa de Avanço (mín.—máx.) (mm/rot)	Rotação (min ⁻¹)	Taxa de Avanço (mín.—máx.) (mm/rot)	Rotação (min ⁻¹)	Taxa de Avanço (mín.—máx.) (mm/rot)
1.0	15900	0.05 (0.030—0.075)	3100	0.02 (0.016—0.027)	3100	0.02 (0.016—0.031)
1.2	13200	0.065 (0.045—0.090)	2600	0.025 (0.022—0.032)	2600	0.03 (0.022—0.037)
1.6	11900	0.085 (0.053—0.120)	1900	0.03 (0.025—0.040)	1900	0.03 (0.025—0.040)
2.0	9500	0.105 (0.060—0.150)	2300	0.04 (0.032—0.050)	2300	0.04 (0.032—0.050)
2.5	8900	0.135 (0.075—0.200)	1900	0.05 (0.040—0.060)	1900	0.05 (0.040—0.060)
3.2	7900	0.1 (0.06—0.13)	1900	0.07 (0.05—0.09)	1900	0.07 (0.05—0.09)
4.0	6300	0.12 (0.08—0.16)	1500	0.09 (0.06—0.11)	1500	0.09 (0.06—0.11)
5.0	5000	0.15 (0.10—0.20)	1200	0.11 (0.08—0.14)	1200	0.11 (0.08—0.14)
6.3	4500	0.2 (0.13—0.26)	1200	0.14 (0.09—0.19)	1200	0.14 (0.09—0.19)
8.0	3500	0.23 (0.18—0.28)	900	0.14 (0.11—0.17)	900	0.14 (0.11—0.17)
10.0	2800	0.27 (0.22—0.32)	700	0.16 (0.12—0.19)	700	0.16 (0.12—0.19)
12.0	2600	0.31 (0.28—0.34)	600	0.16 (0.13—0.18)	600	0.16 (0.13—0.18)
16.0	2100	0.33 (0.28—0.38)	400	0.18 (0.14—0.21)	500	0.18 (0.14—0.21)
20.0	1700	0.35 (0.30—0.40)	400	0.19 (0.15—0.22)	400	0.19 (0.15—0.22)

MZS (Refrigeração interna)

Material	Aço Baixo Carbono ($\leq 180\text{HB}$)		Aço Carbono, Aço Liga (180–280HB)		Aço Carbono, Aço Liga (280–350HB)	
	AISI 1010 etc		AISI 1045, AISI 4140 etc		AISI 4340 etc	
Diâm. DC (mm)	Rotação (min^{-1})	Taxa de Avanço (Mín.—Máx.) (mm/rot)	Rotação (min^{-1})	Taxa de Avanço (Mín.—Máx.) (mm/rot)	Rotação (min^{-1})	Taxa de Avanço (Mín.—Máx.) (mm/rot)
1.0	12700	0.035 (0.020–0.050)	9500	0.035 (0.020–0.050)	9500	0.035 (0.020–0.050)
1.2	10600	0.045 (0.030–0.060)	7900	0.045 (0.030–0.060)	7900	0.045 (0.030–0.060)
1.6	8900	0.055 (0.035–0.080)	6900	0.055 (0.035–0.080)	6900	0.055 (0.035–0.080)
2.0	7900	0.07 (0.040–0.100)	6300	0.07 (0.040–0.100)	6300	0.07 (0.040–0.100)
2.5	6300	0.085 (0.050–0.125)	5700	0.085 (0.050–0.125)	5000	0.085 (0.050–0.125)
3.2	7900	0.1 (0.06–0.13)	6900	0.1 (0.06–0.13)	5900	0.1 (0.06–0.13)
4.0	6300	0.12 (0.08–0.16)	6300	0.12 (0.08–0.16)	5100	0.11 (0.07–0.14)
5.0	5700	0.15 (0.10–0.20)	5700	0.15 (0.10–0.20)	4400	0.14 (0.09–0.18)
6.3	5000	0.2 (0.13–0.26)	4500	0.2 (0.13–0.26)	3500	0.18 (0.11–0.24)
8.0	4300	0.23 (0.18–0.28)	3900	0.23 (0.18–0.28)	3100	0.21 (0.16–0.25)
10.0	3800	0.27 (0.22–0.32)	3500	0.27 (0.22–0.32)	2500	0.23 (0.19–0.27)
12.0	3400	0.3 (0.26–0.34)	3100	0.3 (0.28–0.34)	2300	0.26 (0.22–0.29)
16.0	2700	0.33 (0.27–0.38)	2500	0.33 (0.28–0.38)	1700	0.28 (0.23–0.33)
20.0	2300	0.35 (0.30–0.40)	2200	0.35 (0.30–0.40)	1500	0.3 (0.26–0.34)

Material	Aço Inoxidável Austenítico ($\leq 200\text{HB}$)		Ferro Fundido Cinzento ($\leq 350\text{MPa}$)		Ferro Fundido Nodular ($\leq 450\text{MPa}$)	
	AISI 304, AISI 316 etc		DIN GG-30 etc		DIN GGG-45 etc	
Diâm. DC (mm)	Rotação (min^{-1})	Taxa de Avanço (Mín.—Máx.) (mm/rot)	Rotação (min^{-1})	Taxa de Avanço (Mín.—Máx.) (mm/rot)	Rotação (min^{-1})	Taxa de Avanço (Mín.—Máx.) (mm/rot)
1.0	6300	0.03 (0.020–0.044)	12700	0.035 (0.020–0.050)	9500	0.035 (0.020–0.050)
1.2	5300	0.04 (0.030–0.053)	10600	0.045 (0.030–0.060)	7900	0.045 (0.030–0.060)
1.6	4900	0.05 (0.035–0.070)	8900	0.055 (0.035–0.080)	6900	0.055 (0.035–0.080)
2.0	4700	0.06 (0.040–0.080)	7900	0.07 (0.040–0.100)	6300	0.07 (0.040–0.100)
2.5	3800	0.075 (0.050–0.100)	6300	0.085 (0.050–0.125)	5000	0.085 (0.050–0.125)
3.2	2900	0.08 (0.06–0.10)	7900	0.1 (0.06–0.13)	5900	0.1 (0.06–0.13)
4.0	3100	0.09 (0.06–0.11)	6300	0.12 (0.08–0.16)	5100	0.12 (0.08–0.16)
5.0	2500	0.11 (0.08–0.14)	5700	0.15 (0.10–0.20)	4400	0.15 (0.10–0.20)
6.3	2200	0.14 (0.09–0.18)	5000	0.2 (0.13–0.26)	3500	0.2 (0.13–0.26)
8.0	1900	0.15 (0.10–0.19)	4300	0.25 (0.18–0.31)	3100	0.23 (0.18–0.28)
10.0	1500	0.16 (0.12–0.20)	3800	0.29 (0.22–0.35)	2500	0.27 (0.22–0.32)
12.0	1500	0.18 (0.15–0.21)	3400	0.32 (0.26–0.37)	2300	0.3 (0.26–0.34)
16.0	1200	0.19 (0.14–0.24)	2700	0.35 (0.27–0.42)	1700	0.33 (0.28–0.38)
20.0	1100	0.21 (0.15–0.26)	2300	0.37 (0.30–0.44)	1500	0.35 (0.30–0.40)

FURAÇÃO(METAL DURO INTEIRIÇO)

MZE/MZS

ESCALONADAS PARA CHANFRAR

METAL DURO

■ MZS (Refrigeração interna)

Material	Ligas de Alumínio (Si<5%)		Ligas Resistentes ao Calor			
			Inconel718 etc			
Diâm. DC (mm)	Rotação (min ⁻¹)	Taxa de Avanço (Mín.—Máx.) (mm/rot)		Rotação (min ⁻¹)	Taxa de Avanço (Mín.—Máx.) (mm/rot)	
1.0	19000	0.05	(0.030—0.075)	3100	0.02	(0.016—0.027)
1.2	15900	0.065	(0.045—0.090)	2600	0.025	(0.022—0.032)
1.6	13900	0.085	(0.053—0.120)	1900	0.03	(0.025—0.040)
2.0	11100	0.105	(0.060—0.150)	1500	0.04	(0.032—0.050)
2.5	10100	0.135	(0.075—0.200)	1200	0.05	(0.040—0.060)
3.2	9900	0.23	(0.10—0.35)	1400	0.07	(0.05—0.09)
4.0	7900	0.24	(0.12—0.35)	1100	0.09	(0.06—0.11)
5.0	7000	0.25	(0.15—0.35)	1200	0.11	(0.08—0.14)
6.3	6000	0.35	(0.20—0.50)	1200	0.13	(0.09—0.16)
8.0	4700	0.35	(0.20—0.50)	900	0.14	(0.11—0.17)
10.0	4100	0.5	(0.20—0.80)	700	0.15	(0.12—0.17)
12.0	3900	0.5	(0.20—0.80)	600	0.16	(0.13—0.18)
16.0	3300	0.6	(0.20—1.00)	500	0.18	(0.14—0.21)
20.0	2700	0.6	(0.20—1.00)	400	0.19	(0.15—0.22)

FURAÇÃO