

# BRASSINTER



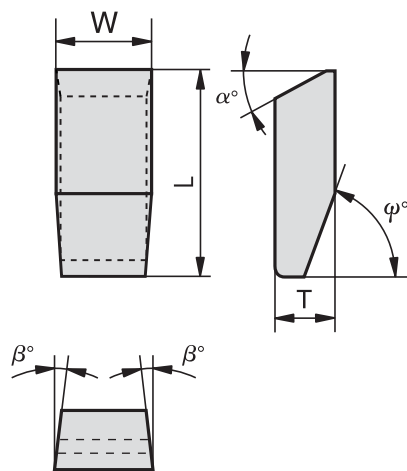
PASTILHAS DE SERRA

*SAW TIPS*

**DIVISÃO METAL DURO**  
*Hardmetals Division*

## ESTILO TWW

### Pastilhas Neutras / Neutral Tips



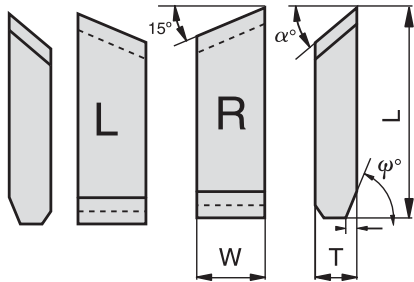
Estilo Style	L $\square$ Comprimento Length	W $\square$ Largura - Width Min. - Max.	T $\square$ Espessura Thickness	$\alpha^\circ$	$\beta^\circ$	$\varphi^\circ$
TWW 56	5,0	2,5 - 5,5	2,5	0°	0°	0,3 x 45°
TWW 55	5,5	2,5 - 5,5	1,7	15°	0°	0,6 x 30°
TWW 24	6,5	2,7 - 4,8	2,3	25°	0°	2,47 x 70°
TWW 14	6,6	1,8 - 6,5	2,2	20°	0°	1,0 x 4,5°
TWW 31	7,1	1,8 - 6,5	1,9	30°	0°	0,3 x 45°
TWW 15	8,0	1,8 - 8,3	1,8	20°	0°	1,0 x 45°
TWW 25	8,0	2,7 - 4,8	2,3	25°	0°	2,47 x 70°
TWW 32	8,3	1,8 - 6,5	1,8	30°	0°	1,2 x 70°
TWW 16	9,4	1,5 - 4,5	2,5	20°	0°	0,6 x 45°
TWW 20	9,6	1,8 - 7,5	2,1	15°	0°	1,2 x 70°
TWW 10	9,6	1,8 - 8,3	2,2	20°	0°	1,0 x 45°
TWW 22	9,6	1,8 - 8,3	2,4	15°	0°	0,8 x 60°
TWW 23	9,6	1,8 - 8,3	3,0	15°	0°	1,0 x 60°
TWW 11	9,6	1,8 - 8,3	3,2	20°	0°	2,0 x 45°
TWW 26	9,6	2,5 - 7,5	2,2	25°	0°	3,4 x 70°
TWW 12	10,0	2,2 - 10,6	3,6	20°	0°	2,0 x 45°
TWW 27	10,5	3,0 - 7,5	3,5	25°	0°	3,5 x 59°
TWW 34	10,5	3,0 - 10,0	2,5	25°	0°	3,57 x 70°
TWW 21	10,6	1,8 - 8,3	3,1	15°	0°	1,4 x 70°
TWW 13	11,7	1,8 - 8,3	3,2	20°	0°	1,0 x 45°
TWW 17	12,0	6,0 - 12,3	4,2	35°	0°	2,2 x 45°
TWW 28	12,5	3,5 - 6,5	3,0	25°	0°	4,5 x 64°
TWW 29	13,0	3,5 - 7,5	3,5	25°	0°	4,5 x 65°
TWW 30	14,0	3,0 - 15,0	4,0	30°	0°	2,0 x 60°
TWW 18*	14,0	7,2 - 26,2	12,3	35°	0°	11,0 x 18°
TWW 19	14,3	5,2 - 26,2	12,3	30°	0°	2,0 x 60°
TWW 33	15,0	5,5 - 10,2	4,0	25°	0°	2,0 x 45°

\* Para o Estilo TWW 18 162  $\alpha^\circ = 30^\circ$   $\varphi^\circ = 11^\circ$

\* For the style TWW 18 162  $\alpha^\circ = 30^\circ$   $\varphi^\circ = 11^\circ$

## ESTILO TWW

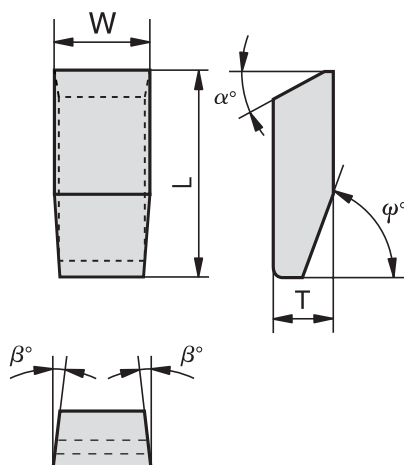
### Pastilhas Direita - Esquerda / *Saw Tips - Right and Left Hand*



Estilo Style	L (mm) Comprimento - Length Min. - Máx.	W (mm) Largura Width	T (mm) Espessura Thickness	$\alpha^\circ$	$\varphi^\circ$
TWW 932 L/R	5,0 - 10,0	3,2	1,9	30°	0,3 x 45°
TWW 933 L/R	5,0 - 12,0	3,4	2,1	20°	1,0 x 45°
TWW 934 L/R	5,0 - 12,0	3,4	3,1	20°	2,0 x 45°
TWW 936 L/R	5,0 - 12,0	3,7	2,1	20°	1,0 x 45°
TWW 937 L/R	5,0 - 12,0	3,7	3,1	20	2,0 x 45°
TWW 943 L/R	5,0 - 12,0	4,4	2,1	20°	1,0 x 45°
TWW 944 R/L	5,0 - 12,0	4,4	3,1	20°	2,0 x 45°
TWW 947 L/R	5,0 - 12,0	4,7	3,1	20°	2,0 x 45°
TWW 951 L/R	5,0 - 12,0	5,1	2,1	20°	1,0 x 45°
TWW 953 L/R	5,0 - 12,0	5,3	3,1	20°	2,0 x 45°
TWW 954 L/R	5,0 - 14,0	5,4	3,1	20°	1,0 x 45°
TWW 955 L/R	5,0 - 12,0	5,5	3,2	20°	2,0 x 45°

## ESTILO TWW

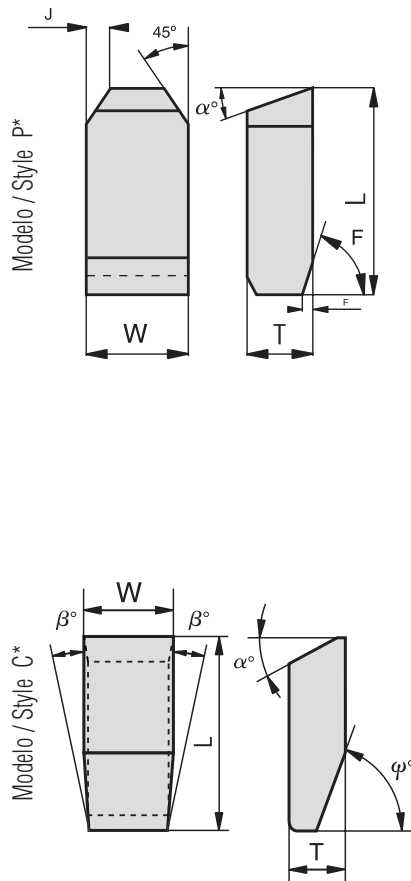
### Pastilhas Neutras com Folga Lateral / *Neutral Saw Tips (Tapered Style)*



Estilo Style	L (mm) Comprimento Length	W (mm) Largura - Width Min. - Máx.	T (mm) Espessura Thickness	$\alpha^\circ$	$\beta^\circ$	$\varphi^\circ$
TWW 50	8,0	2,5 - 8,3	2,2	25°	5°	1,5 x 60°
TWW 51	8,0	2,5 - 6,5	2,2	18°	5°	1,5 x 60°
TWW 52	10,5	2,5 - 11,5	2,5	20°	5°	1,2 x 70°
TWW 53	10,5	2,5 - 11,5	2,5	25°	5°	1,5 x 70°
TWW 54	15,9	3,5 - 13,5	2,5	30°	5°	1,6 x 45°

## ESTILO TMW

### Pastilhas para Metal / *Metal Cutting Saw Tips*



Estilo <i>Style</i>	L (mm) Comprimento <i>Length</i>	W (mm) Largura - <i>Width</i> Min. - Máx.	T (mm) Espessura <i>Thickness</i>	$\alpha^\circ$	$\beta^\circ$	F	J
TMW 60	5,0	2,8 - 8,0	2,0	15°	0°	0,6 x 60°	1,4
TMW 61	6,0	3,0 - 8,0	3,0	8°	2°	-	1,7
TMW 62	8,0	4,2 - 8,0	2,2	15°	0°	0,9 x 60°	1,7
TMW 63	8,0	4,5 - 8,0	3,0	8°	2°	-	1,7
TMW 64	8,9	5,0 - 10,0	4,0	8°	0°	-	2,9
TMW 65	10,0	4,0 - 8,0	2,2	15°	0°	0,9 x 60°	1,3
TMW 66	10,0	5,0 - 8,0	3,7	15°	0°	0,9 x 60°	2,0
TMW 67	10,0	6,0 - 10,0	4,0	8°	2°	-	2,4
TMW 68	10,5	4,5 - 8,0	3,0	8°	2°	-	1,8
TMW 69	11,0	5,0 - 10,0	3,7	15°	0°	1,2 x 60°	2,1
TMW 70	11,0	7,0 - 11,5	4,0	8°	2°	-	3,0
TMW 71	12,6	5,8 - 10,0	3,7	15°	2°	1,2 x 60°	2,8
TMW 72	13,0	5,5 - 11,5	4,0	8°	0°	-	2,7
TMW 73	13,6	7,0 - 10,0	3,7	15°	2°	1,2 x 60°	3,2
TMW 74	15,0	7,0 - 11,5	4,0	8°	2°	-	3,1
TMW 80	6,0	3,0 - 4,6	3,0				

P\* Modelo Pré-Cortador / *Precutting Style*

C\* Modelo Cortador / *Cutting Style*

## Tolerâncias / *Tolerances*

### Pastilhas de Serra Modelos TWW e TMW / *Saw Tips TWW and TMW Styles*

Dimensões (mm) <i>Dimensions (mm)</i>			Tolerâncias (mm) <i>Tolerances (mm)</i>		
0	-	15,0	+0,2	-	0,0
15,1	-	30,0	+0,4	-	0,0
30,1	-	>	+0,6	-	0,0

**Classes de Metal Duro / *Hardmetal Grades***

Classes <i>Grades</i>	Composição (%) <i>Composition (%)</i>					TRS <sup>1</sup> (N/mm <sup>2</sup> ) (MPa)	Densidade <i>Density</i> (g/cm <sup>3</sup> )	Dureza <i>Hardness</i> (HRA)	Especificações <i>Specifications</i>	Aplicações <i>Applications</i>
	WC	TiC Ta(Nb)C	Co	Ni	Outros <i>Others</i>					
BF34	93,5	-	6,0	-	0,5	-	14,9	93,5	ISO K01 Microgrão	-Madeiras duras. -Materiais altamente abrasivos - MDF. -Aços endurecidos. -Operações de corte em acabamento leve.  - <i>Hard wood. -Highly abrasive materials</i> - <i>Medium Density Fiber. -Hardened steel.</i> - <i>Cutting and finishing operations.</i>
BF33	89,4	-	10,0	-	0,6	-	14,5	92,1	ISO K10 Microgrão	-Madeiras convencionais. -Classe com alta resistência a choques mecânicos. -Classe para aplicações diversas. -Classe mais indicada para a fabricação de fresas e brocas para usinagem de materiais diversos.  - <i>Ordinary wood. -High mechanical shock</i> - <i>resistant grade. -General applications. -First</i> - <i>choice for milling and solid drills for</i> - <i>machining different materials.</i>
BF41	93,8	2,4	3,8	-	-	1700	15,0	93,2	C4 <sup>3</sup> /ISO K01/G05 <sup>3</sup>	-Indicada para usinagem de aços endurecidos ou temperados e usinagem de peças altamente abrasivas como fibra, nylon, madeiras e operações de acaba- mento em ferro fundido -Alta resistência ao desgaste.  - <i>Recommended for machining hardened or grunched</i> - <i>steel and highly abrasive materials like fiber, nylon,</i> - <i>wood and finishing operations on gray cast iron.</i> - <i>It has high wear resistance.</i>
BF30	92,0	2,0	6,0	-	-	2000	14,8	92,5	ISO K10	-Classe mais indicada para corte de madeiras em geral. -Classe mais empregada para pastilhas de solda, usinagem de ferro fundido ou nodular. -Possui grande aceitação no mercado.  - <i>Standard grade for general woodworking.</i> - <i>First choice for brazed tips used for</i> - <i>machining of gray cast iron and ductile iron.</i>
BF20	94,0	-	6,0	-	-	2150	14,8	91,5	C10 <sup>3</sup> /ISO K20/G10 <sup>3</sup>	Classe indicada para operações de corte e desbaste pesado de madeira, ferro fundido e materiais diversos.  <i>First choice for cutting and roughing of wood,</i> <i>gray cast iron and different materials.</i>
BA55	77,5	14,0	8,5	-	-	1950	12,3	91,5	ISO P30	Primeira escolha para a usinagem de aços convencionais em operações de desbaste leve e acabamento.  <i>Frist choise for medium roughing and</i> <i>finishing of ordinary steel.</i>
BA53	79,4	9,3	11,3	-	-	2200	12,9	90,4	ISO P40	Classe mais indicada para a usinagem pesada de aços convencionais, aços inoxidáveis e operações de usinagem pesada.  <i>Recommended for roughing of ordinary steels</i> <i>and stainless steels.</i>
B25M	68,0	22,0	10,0	-	-	2000	12,5	91,3	ISO P25	Classe utilizada em serras de metais e operações de fresamento em aços com dureza média (30 – 45 HRC). Desbaste leve ou acabamento.  <i>Grade recommended for tips of circular saws for</i> <i>metal cutting and milling operations on medium</i> <i>hardness steels (30 - 45 HRC). Medium</i> <i>roughing and finishing.</i>

1 - TRS - Teste de Ruptura Transversal / *Transverse Rupture Strength* / 2 - Referência utilizada pelo mercado / *Common Reference* / 3 - Conforme norma / *By - American Industry Standard*

## Microgrão / *Micrograin*

### Classes de Metal Duro Tipo Microgrão

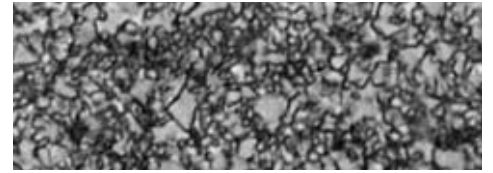
A Brassinter possui em sua linha duas classes de Metal Duro (BF33 e BF34), exclusivamente desenvolvidas para o corte de madeiras e materiais que exigem das ferramentas alta resistência ao desgaste, e grande tenacidade para suportar os diversos tipos de corte e operações existentes. A solução destes problemas foi encontrada nas classes microgrão. Por utilizar grãos de Carboneto de Tungstênio de tamanho muito reduzido (menores do que 1,0 micron), é possível conciliar em uma mesma ferramenta grande tenacidade, juntamente com alta resistência a abrasão. Qualidades necessárias para aplicações em diversos tipos de madeiras, nos compostos especiais MDF e blanks para a fabricação de ferramenta rotativas como fresas e brocas.

### *Micrograin Hardmetal Grades*

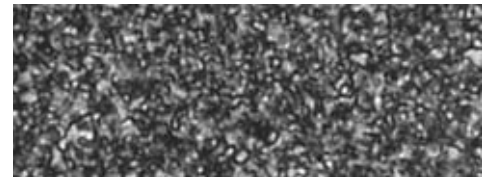
*Brassinter has in its line of products two carbide grades (BF33 & BF34) specially designed for woodworking and for materials that demand high wear resistance and high toughness. They are able to do all cutting operations that are necessary.*

*This combination of high toughness and wear resistance is obtained by the use of micrograin tungsten carbide (grain size less than 1,0 micron). These properties are necessary for working the different types of wood, medium density fiber (MDF) wood composites and also for blanks to make circular tools like milling and end mill tools.*

Grão Fino - 1500x



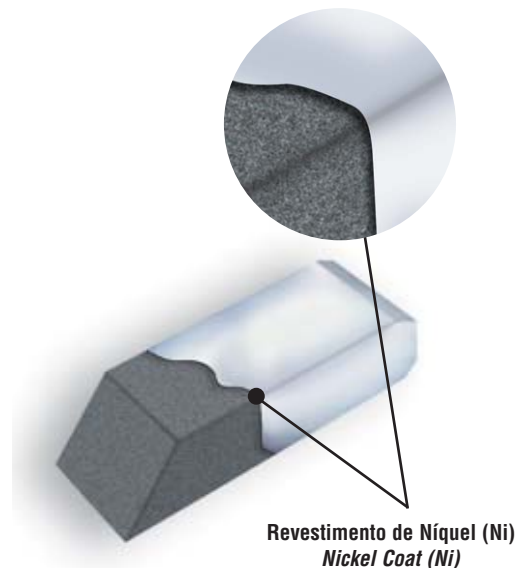
Micro Grão - 1500x



## Revestimento de Níquel / *Nickel Coat (Ni)*

Especialmente projetado para processos automatizados de fabricação de serras, a Brassinter desenvolveu o revestimento de Níquel (Ni) para pastilhas de Metal Duro, que possui as seguintes vantagens: • Melhor Soldagem • Evita a oxidação • Indicado para processos automatizados.

*Brassinter introduced nickel coated hardmetal tips having in mind the automated process for fabricating circular saws. They have the following advantages: • Better brazing • Prevents oxidation • Indicated for automated processes.*



Revestimento de Níquel (Ni)  
*Nickel Coat (Ni)*

## Desenvolvimento de Produtos / *Products Development*

Possuímos todos os recursos necessários para desenvolver produtos que atendam a todas as suas necessidades.

*We have all required resources to develop products that attend your necessities.*



# BRASSINTER avança... muito! Mas preserva o idealismo de seus fundadores.

**BRASSINTER never stops advancing. But at the same time preserves its founders' idealism.**

*BRASSINTER was founded fifty four years ago by professors and research workers from the S. PAULO RESEARCH AND DEVELOPMENT INSTITUTE, (IPT), which is associated with the ENGINEERING SCHOOL in UNIVERSITY OF S. PAULO; thus BRASSINTER came into the world determined to research applied metallurgy and the mechanics of metal cutting processes.*

*A climate of dedication during its formative years set BRASSINTER on the path of professionalism, and pragmatic approaches to its clients' needs. Over the years these attitudes have become a philosophy of competence, which has made the company the leader of an important industrial sector.*

*Nowadays BRASSINTER is proud of being a supplier, often the only supplier, to many major users of cutting tools, for whom quality is sine qua non.*

*BRASSINTER makes use of the best technology available. This in turn enables the client to guarantee the excellence of his products, and thus we define the mission of our three hundred strong team.*

*We invite you to inspect our product lines, some of which certainly improve your productivity.*

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