

# Tubi saldati da nastro a caldo e zincati

**Tubi tondi, quadri, rettangolari, ellittici, ovali, triangolari e sagome speciali**

Round, square, rectangular, elliptical, oval, triangular and special tubes  
Rund-, Vierkant- und Rechteckrohre, elliptische Rohre, Ovalrohre, dreieckige und Sonderrohre

Tubes ronds, carrés, rectangulaires, elliptiques, ovales, triangulaires et spéciaux  
Tubos redondos, cuadrados, rectangulares, elípticos, ovalados, triangulares y perfiles especiales

ERW steel tubing from hot-rolled strip/galvanized strip

Geschweisste Rohre aus Warmband und verzinkte Rohre

Tubes soudés issus de feuillards laminés à chaud/zingués

Tubos soldados obtenidos de fleje laminado en caliente y galvanizado

**Tubi per serramenti**

Tubular sections for windows and door frames

Rohre für Türen und Fenster

Tubes pour menuiseries métalliques

Tubos para puertas y ventanas

**Tubi per impieghi automotive**

Tubes for automotive applications

Rohre für die Autoindustrie

Tubes pour l'industrie automobile

Tubos para la industria del automóvil

**Tubi per carpenteria strutturale**

Welded tubes for steel structural work

Konstruktionsrohre

Tubes pour structures métalliques

Tubos para carpintería estructurales

**Tubi per palificazione**

Tubes for piling

Rohre für Gründungen

Tubes pour poteaux / pieux

Tubos para pilotaje

**Tubi per rulli**

Roller conveyor tubes

Tragrollenrohre

Tubes pour rouleaux

Tubos para rodillos

**Tubi per scambiatori di calore e caldareria**

Heat exchanger and boiler tubes

Rohre für Boiler und Wärmetauscher

Tubes pour échangeurs de chaleur et chaudières

Tubos para intercambiadores de calor y caldereria

**Tubi per condotte, acqua e gas**

Gas and water line pipes

Gas- und Wasserleitungsrohre

Tubes pour canalisation, eau/gaz

Tubos para conducción agua y gas

**Tubi per ponteggi e puntellazione**

Tubes for scaffolding and propping

Rohre für Metallgerüste und Stützstrukturen

Tubes pour échafaudages et support

Tubos para andamios y apuntalamiento



# Tubi saldati da nastro a caldo e zincati

**ERW steel tubing from hot-rolled strip/galvanized strip**  
**Geschweisste Rohre aus Warmband und verzinkte Rohre**  
**Tubes soudés issus de feuillards laminés à chaud/zingués**  
**Tubos soldados obtenidos de fleje laminado en caliente y galvanizado**

## Condizioni di fornitura

I tubi vengono forniti con i seguenti trattamenti di finitura:

**Simbolo (a): Designazione e descrizione:**

- +CR1 (b)** = **Saldato e calibrato a freddo.** Crudo di tubatura, ma adatto a ricottura finale.
- +CR2 (c)** = **Saldato e calibrato a freddo.** Crudo di tubatura, non adatto a trattamento termico dopo saldatura e calibrazione a freddo.
- +A** = **Ricotto.** Dopo la saldatura e la calibrazione viene sottoposto ad un trattamento di ricottura in atmosfera controllata.
- +N** = **Normalizzato.** Dopo il processo di saldatura e di calibrazione i tubi sono normalizzati in atmosfera controllata. Questo prodotto può essere eseguito con un processo diretto.

(a) Vedi tavola di conversione dei simboli trattamenti utilizzati frequentemente.

(b) Dopo eventuale trattamento di ricottura o normalizzazione, vedere tabella di pag. 4 per i valori meccanici ottenuti normalmente rispettivamente per il trattamento +A o +N.

(c) Se vengono applicati ulteriori trattamenti termici, i valori meccanici ottenuti potrebbero essere fuori dai requisiti specificati.

Nota: il tubo normalmente prodotto calibrato e saldato pronto all'uso è da intendersi con il simbolo +CR2.

*Tubes may be supplied in the final conditions listed below:*

**Symbol (a): Designation and description:**

- +CR1 (b)** = **Welded and sized.** Cold formed, suitable for heat treatment
- +CR2 (c)** = **Welded and sized.** Cold formed, not suitable for heat treatment
- +A** = **Annealed.** After welding and sizing, tubes undergo heat treatment in controlled atmosphere
- +N** = **Normalized.** After welding and sizing, tubes undergo normalizing treatment in controlled atmosphere. This condition may be achieved through direct processing.

(a) See reference table of final treatment symbols commonly in use.

(b) The mechanical values resulting after annealing or normalization are specified in table (page 4), concerning conditions +A or +N respectively.

(c) In case of further heat treatments, the tubes' mechanical values can not comply with the given limits.

Notice: the untreated tube, welded and sized, is designated by the symbol +CR2.



Supply conditions  
Lieferzustand  
Conditions de livraison  
Condiciones de suministro

Die Rohre werden in den folgenden Zuständen geliefert:

**Abkürzung (a): Bezeichnung und Beschreibung:**

+CR1 (b) = Kaltgeschweißt, maßgewalzt. Maschinenfertig, zur Wärmebehandlung geeignet.

+CR2 (c) = Kaltgeschweißt, maßgewalzt. Maßgewalzt bzw. maschinenfertig, zur Wärmebehandlung ungeeignet.

+A = Geglüht. Nach der Fertigung sind die Rohre unter Schutzgas geglüht.

+N = Normalgeglüht. Nach der Fertigung sind die Rohre unter Schutzgas normalgeglüht. Dies Produkt kann durch direktes Verfahren erzeugt werden.

(a) Siehe Tabelle mit den Abkürzungen der Standard-Behandlungen.

(b) Die Tabelle (Seite 4) enthält die mechanischen Werte nach Wärmebehandlung, die bei den Rohren in den Lieferzuständen +A o +N auftreten.

(c) Falls die Rohre weiteren Wärmebehandlungen untergehen, dürfen die dadurch erzielten mechanischen Werte von den angegebenen Grenzen abweichen.

Bemerkung: das normal kaltgeschweißte, maßgewalzte Rohr ist mit der Abk. +CR2 bezeichnet.

Nos tubes peuvent être fournis avec des traitements de finissage, soit:

**Symbole (a): Désignation et description**

+CR1 (b) = Tubes soudés finis à froid. Brut d'étirage, mais apte au traitement final de recuit.

+CR2 (c) = Tubes soudés finis à froid. Brut d'étirage, qui n'est pas apte au traitement de recuit après fabrication

+A = Recuit. Après soudure et finissage à froid les tubes subissent un recuit sous atmosphère contrôlée.

+N = Normalisé. Après soudure et finissage à froid les tubes subissent un traitement thermique de normalisation sous atmosphère contrôlée. Cette opération peut être effectuée directement après fabrication.

(a) Voir tableau de conversion pour les symboles plus courants.

(b) Voir tableau (page 4) pour les valeurs mécaniques standard après recuit ou normalisation (valeurs +A et +N, à suivre).

(c) En cas de traitements thermiques supplémentaires, les caractéristiques mécaniques pourraient être différentes

Remarque: en cas de tubes soudés, finis à froid et prêts à l'emploi il faut se baser sur valeurs indiqués par +CR.

Los tubos vienen suministrados con los siguientes tratamientos de terminado:

**Símbolo (a): Indicación y descripción:**

+CR1 (b) = Soldado y calibrado en frío. Crudo para conducto, pero adecuado a recocición final.

+CR2 (c) = Soldado y calibrado en frío. Crudo para conducto, no adecuado para tratamiento térmico después de soldadura y calibración en frío

+A = Recocido. Después de la soldadura y la calibración se somete a un tratamiento de recocición en atmósfera controlada.

+N = Normalizado. Después del proceso de soldadura y de calibración los tubos vienen normalizados en atmósfera controlada. Este proceso puede realizarse con un procedimiento directo.

(a) Ver tabla de conversión de los símbolos de tratamientos utilizados frecuentemente.

(b) Después del eventual tratamiento de recocición o normalización, ver tabla (página 4) para los valores mecánicos obtenidos normalmente sea para el tratamiento +A o +N.

(c) Si se aplican ulteriores tratamientos térmicos, los valores mecánicos obtenidos podrían quedar fuera de los requisitos especificados.

Nota: el tubo producido normalmente, calibrado y soldado listo para el uso debe proponerse con el símbolo +CR2.

## CONDIZIONI DI FINITURA SUPERFICIALE sec. EN10305-3 e EN10305-5

Surface condition according to EN10305-3 and EN10305-5

Oberflächenbeschaffenheit nach EN10305-3 und EN10305-5

État de surface selon . EN10305-3 et EN10305-5

Condiciones de terminado superficial sec. EN10305-3 y EN10305-5

Codice	Descrizione dello stato - State description
S1	Da nastro laminato a caldo nero - From hot-rolled strip, black
S2	Da nastro laminato a caldo decapato - From hot-rolled strip, pickled
S3	Da nastro laminato a freddo - From cold-rolled strip
S4	Da nastro rivestito secondo condizioni stabilite - From coated strip

## Norme di produzione

Manufacturing standards  
Produktionsnormen  
Normes de production  
Normas de producción

EN 10219  
UNI 7091  
UNI 7288  
DIN 2393-2394-2395-59411-2458 - BS 4360  
DIN 1626  
BS 1175-1387  
NF A49 643  
NF A49 541-542  
ASTM A 500  
ASTM A 120  
EN 10305-3  
EN 10305-5

## CARATTERISTICHE MECCANICHE MINIME PER LA QUALITÀ +CR2<sup>(a)</sup>

Limit values of mechanical properties for +CR2 tubes (a) - Mechanische Eigenschaften - Mindestwerte für Rohrzustand +CR2 (a)  
Valeurs mécaniques minimum pour la qualité +CR2 (a) - Características mecánicas mínimas para la calidad +CR2 (a)

Grade	n° Qlt	R <sub>m</sub> MPa	ReH MPa	A %
E190	1.0031	270	190	26
E220	1.0215	310	220	23
E260	1.0220	340	260	21
E320	1.0237	410	320	19
E370	1.0261	450	370	15
E420	1.0575	490	420	12

Le proprietà meccaniche e tecnologiche della zona di saldatura possono, nel caso di +CR1 e +A, essere diverse da quelle del materiale base.

(a) Vedi tavola di conversione dei simboli trattamenti utilizzati frequentemente.

The mechanical and technological properties in the weld seam area may differ from the material properties of +CR1 and +A tubes.

(a) See reference table of final treatment symbols commonly in use.

## CARATTERISTICHE MECCANICHE A TEMPERATURA AMBIENTE PER LE CONDIZIONI +CR1, +A e +N (destinati a trattamento)

Mechanical properties at room temperature for +CR1, +A, and +N tubes (for heat treatment)

Mechanische Eigenschaften bei Raumtemperatur für Rohrzustände +CR1, +A und +N (zur Behandlung bestimmt)

Valeurs mécaniques à température ambiante pour les tubes en condition +CR1, +A et +N (tubes destinés au traitement)

Características mecánicas a temperatura ambiente para las condiciones +CR1, +A y +N (destinados a tratamiento)

Grado acciaio - Grado acciaio		+CR1 <sup>(b)</sup> (c)		+A <sup>(c)</sup>		+N		
Grade	n° Qlt	R <sub>m</sub> MPa	A %	R <sub>m</sub> MPa	A %	R <sub>m</sub> MPa	ReH MPa <sup>(d)</sup>	A %
E155	1.0033	290	15	260	28	270÷410	155	28
E195	1.0034	330	8	290	28	300÷440	195	28
E235	1.0308	390	7	315	25	340÷480	235	25
E275	1.0225	440	6	390	21	410÷550	275	21
E355	1.0580	540	5	450	22	490÷630	355	22

(a) R<sub>m</sub> resistenza alla trazione, ReH valore di snervamento superiore, A allungamento dopo rottura.

(b) Il valore di snervamento può essere pressoché uguale al valore della rottura in funzione del grado di calibrazione e del materiale di partenza.

A scopo di progettazione i valori di  $ReH \geq 0,7 R_m$  sono raccomandati per la condizione +CR1.

(c) Le proprietà meccaniche e tecnologiche della zona di saldatura possono, nel caso di +CR1 e +A essere diverse da quelle del materiale base.

(d) Per tubi con un diametro  $\leq 30$  mm e spessore  $\leq 3$  mm il valore di ReH in tabella va diminuito di 10 Mpa.

(a) R<sub>m</sub> tensile strength, ReH yield strength, A elongation at fracture.

(b) The yield strength value may almost equal the tensile strength value depending on the tube's raw material and sizing grade.

For calculation purposes yield strength values of  $ReH \geq 0,7 R_m$  are recommended in the +CR1 condition.

(c) The mechanical and technological properties in the weld seam area may differ from the material properties of +CR1 and +A tubes.

(d) For tubes with an outside diameter  $\leq 30$  mm and a wall thickness  $\leq 3$  mm, the ReH value may be 10 Mpa lower.



**COMPOSIZIONE CHIMICA PER COLATA (a)**

Ladle analysis - Schmelzanalyse - Composition chimique par coulée - Composición química para colada

Grade	n° Qlt	C % max	Si % max	Mn % max	P % max	S % max
E155	1.0033	0.11				
E190	1.0031	0.10	0.35	0.70	0.025	0.025
E195	1.0034	0.15				
E220	1.0215	0.14	0.35	0.70	0.025	0.025
E235	1.0308	0.17				
E260	1.0220	0.16	0.35	1.20	0.025	0.025
E275	1.0225	0.21				
E320	1.0237	0.20	0.35	1.40	0.025	0.025
E355 (b)	1.0580	0.22				
E370 (b)	1.0261	0.21	0.55	1.60	0.025	0.025
E420 (b)	1.0575	0.16	0.5	1.70	0.025	0.025

(a) Elementi non compresi in questa tabella (vedere anche nota b)) non devono essere aggiunti intenzionalmente all'acciaio senza accordo con l'acquirente, eccetto per gli elementi per aggiustamento della colata. Tutti gli appropriati interventi devono essere presi per evitare aggiunte indesiderate mediante rottame od altri materiali utilizzati nel processo di fabbricazione dell'acciaio.

(b) Aggiunte di Nb, Ti e V sono ammesse a discrezione del produttore. Il contenuto di questi elementi deve essere riportato.

(a) Except for purposes of ladle adjustment, without buyer permission it is not allowed to add chemical elements to a given steel grade that are not reported by this table (see also note b). All necessary countermeasures must be undertaken to exclude the presence of undesired chemical elements due to scrap or other materials used in the steel production process.

(b) Additions of Nb, Ti and V are at the discretion of the steel producer, and their respective content shall be declared.

**NORME DI RIFERIMENTO PER I TUBI DA NASTRO A CALDO**

Reference standards for tubes from hot-rolled strip - Produktionsnormen für Rohre aus Warmband

Normes applicables pour les tubes issus de bande LAC - Normas de referéncia para tubos de fleje en caliente

En 10305 S1 o S2	UNI 7947	Din 2394	NFA 49643	BS 6323P5	JIS 3445
E190	Fe280	-	TS30.1	ERW1	STKM11A
E220	Fe320	St34.2 Ust34.2 RSt34.2	TS30.2	ERW2	STKM12A
E260	Fe360	St37.2 Ust37.2 RSt37.2	TS34.2 TS37.2	ERW3	STKM12B
E320 E370	Fe410 Fe490	St44.2 St52.3	TS42.2 TS47.2	ERW4 ERW5	STKM12A
E420	-	-	-	-	-



**DIN 1615 TUBI TONDI di acciaio non legato a requisiti particolari (per impiego generico)**  
**DIN 1615 Round steel tubes for general purposes**

Qualità Quality	Nr. qualità Nbr quality	Snervamento Re Yield strength	Resistenza Rm Tensile strength	Allungamento A <sub>5</sub> Elongation	
		N/mm <sup>2</sup>	N/mm <sup>2</sup>	Longitudinale Longitudinal elongation	Trasversale Transversal elongation
St33	1.0035	175	290÷540	17	15

**LUNGHEZZE**

Lengths - Längen - Longueurs - Longitudes

I tubi vengono forniti, salvo accordi diversi all'ordine, in barre commerciali da mm 6000

*Pipes are supplied in 6000 mm lengths unless otherwise specified in order*

*Falls nicht anders bestellt, werden die Rohre in handelsüblichen Längen von 6000 mm geliefert*

*Les tubes sont fournis, sauf accord contraire spécifié dans la commande, en barres marchandes de 6000mm*

*Los tubos se suministran, excepto acuerdo previo al pedido, en barras comerciales de 6000 mm*

**TOLLERANZE**

Tolerances - Toleranzen - Tolérances - Tolerancias

Spessore ±10% esclusa zona di saldatura

*Thickness ±10% excluding welding area*

*Stärke ±10% ausserhalb der Schweissnaht*

*Épaisseur ±10%, zone de soudure exclue*

*Espesor ±10%, excepto en la zona de soldadura*

**DIMENSIONI**

Sizes - Abmessungen - Dimensions - Dimensiones

±1% della dimensione esterna (rilievo effettuato a 150 mm dall'estremità)

*±1% of outside diameter (survey made at 150 mm from end)*

*±1% des äusseren Durchmessers (die Messung erfolgt 150 mm vom Ende)*

*±1% de la dimension extérieure (test effectué à 150 mm de l'extrémité)*

*± 1% de la dimensión exterior (medición realizada a 150 mm. del extremo)*

**TIPDI ACCIAI IMPIEGATI**

Type of steel used - Art der verwendeten stähle - Types d'aciers utilisés - Tipos de aceros empleados

S185 (Fe310) / S235 (Fe360) / S275 (Fe430) / S355 (Fe510)

**TOLLERANZA SULLA QUANTITÀ**

Quantity tolerance - Mengentoleranz - Tolérance sur la quantité - Tolerancia en la cantidad

±10%

**TOLLERANZA SULLA LUNGHEZZA**

Length tolerance - Die Toleranz der Länge beträgt - Tolérance sur la longueur - Tolerancia en la longitud

±50mm

**RAGGIO DEGLI SPIGOLI**

Corner radius - Kantenradius

Rayon des arêtes - Rayo de los ángulos

Per i sagomati 3 volte lo spessore

*For the shapes 3 times the wall thickness*

*Für geformte Teile dreimal die Stärke*

*Pour les profilés 3 fois l'épaisseur*

*Para los perfilados 3 veces el espesor*

# Tubi per serramenti

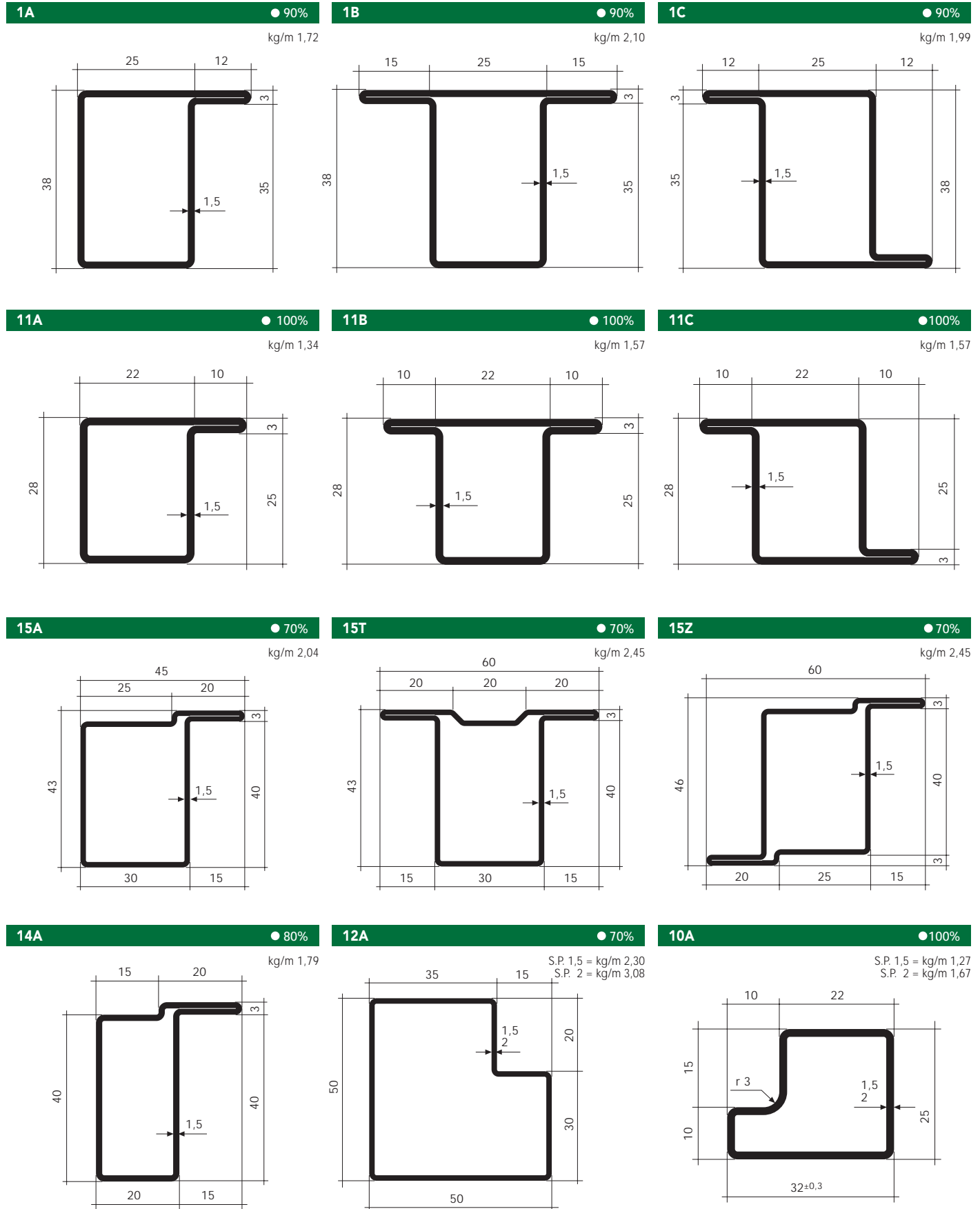
Tubes sections for window and door frames

Rohre für Türen und Fenster

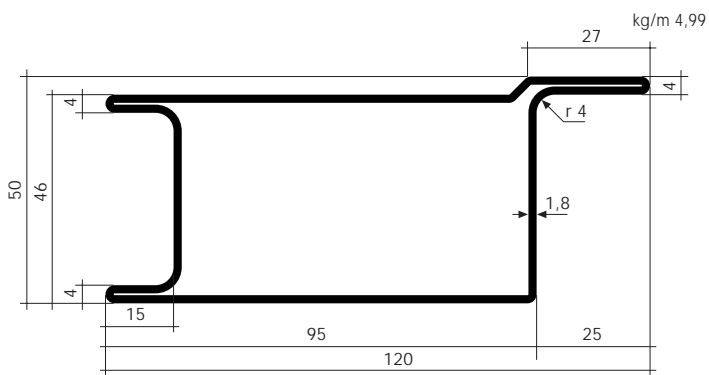
Tubes pour menuiseries métalliques

Tubos para puertas y ventanas

○ Percentuale di ingrandimento o di riduzione dei disegni  
 Enlargement or reduction percentage of the drawings

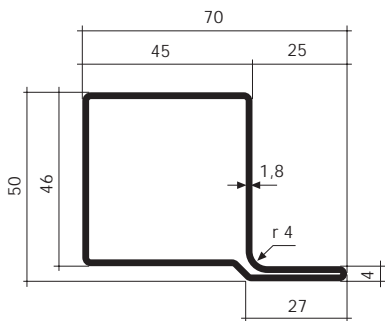


**TS 20 D** ● 60%



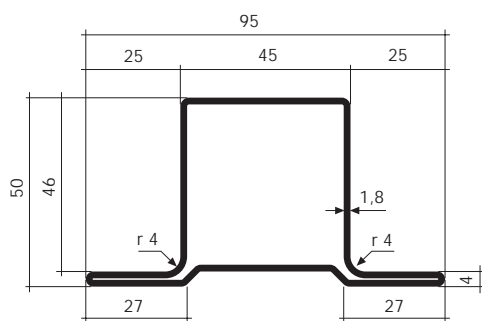
**TS 20 L** ● 50%

kg/m 3,29



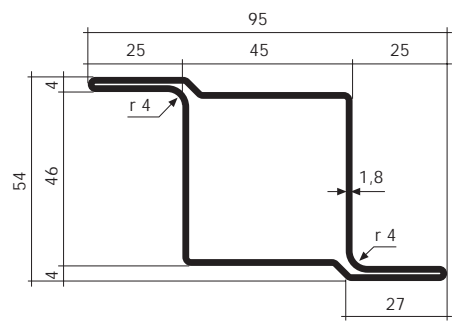
**TS 20 T** ● 50%

kg/m 4,06



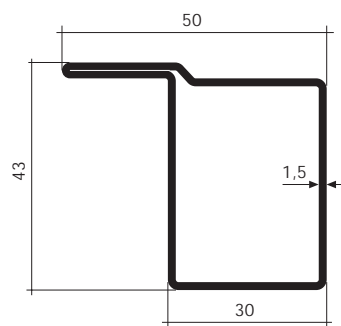
**TS 20 Z** ● 50%

kg/m 4,06



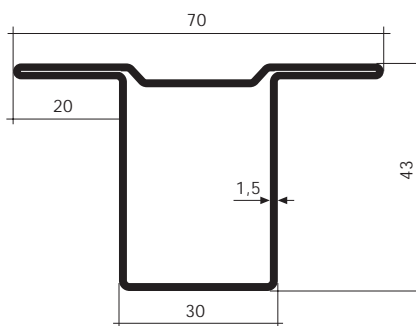
**TS 21 L** ● 70%

kg/m 2,05



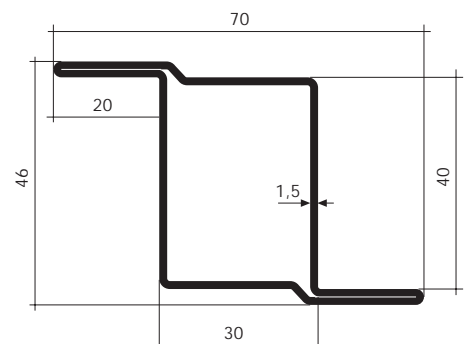
**TS 21 T** ● 70%

kg/m 2,64



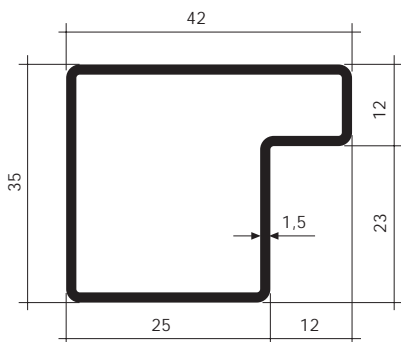
**TS 21 Z** ● 70%

kg/m 2,64



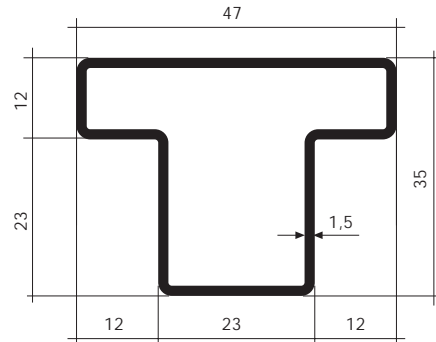
**2A** ● 90%

kg/m 1,76



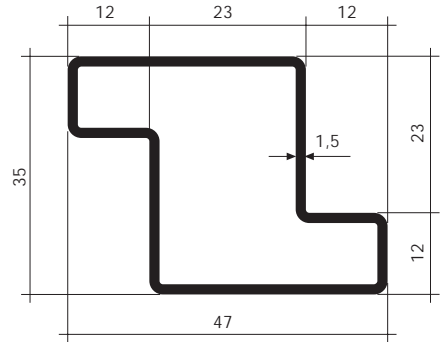
**2B** ● 90%

kg/m 1,88



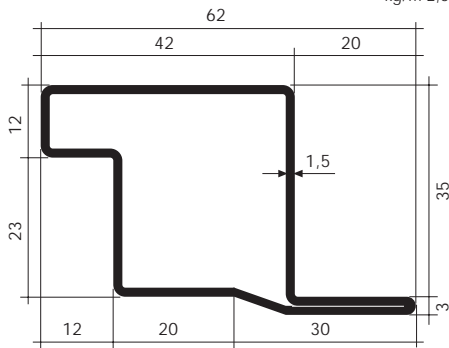
**2Z** ● 90%

kg/m 1,88



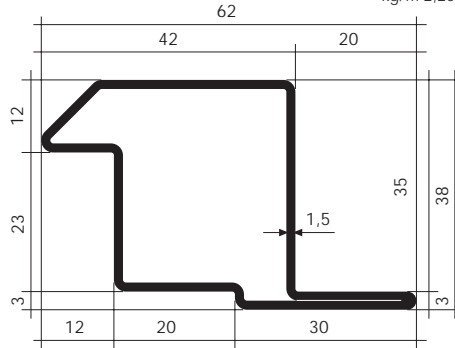
**2N** ● 80%

kg/m 2,30



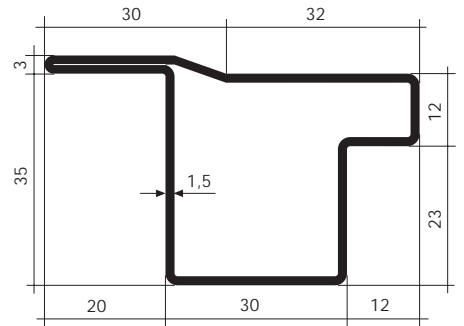
**3N** ● 80%

kg/m 2,25



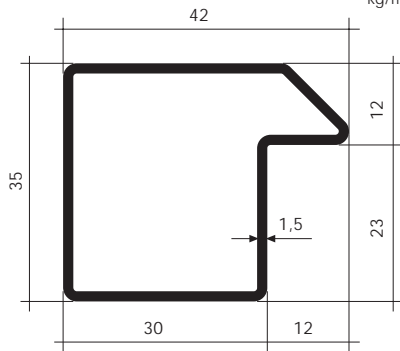
**2T** ● 80%

kg/m 2,30



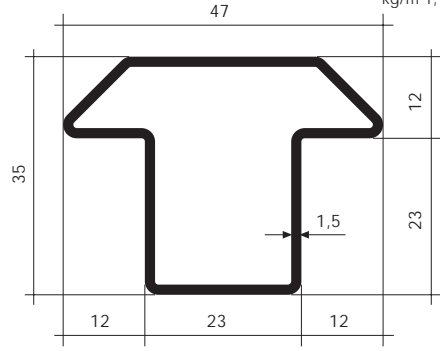
**3A** ● 90%

kg/m 1,70



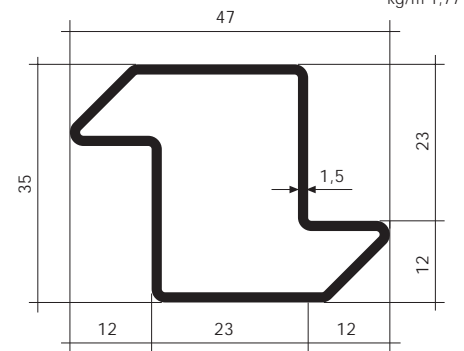
**3B** ● 90%

kg/m 1,77



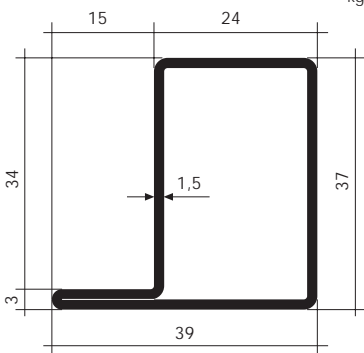
**3Z** ● 90%

kg/m 1,77



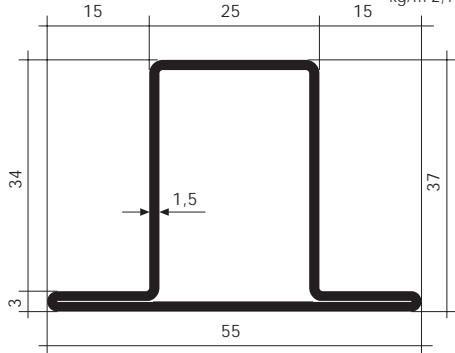
**SA** ● 90%

kg/m 1,72



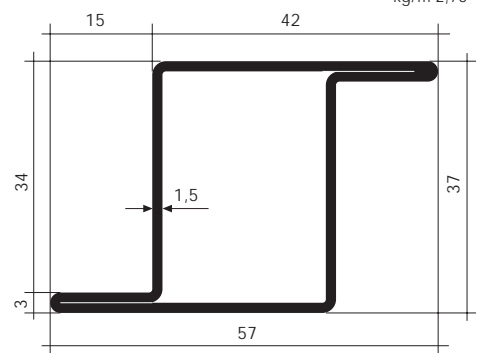
**ST** ● 90%

kg/m 2,16



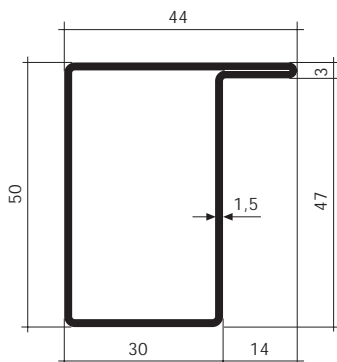
**SZ** ● 90%

kg/m 2,76



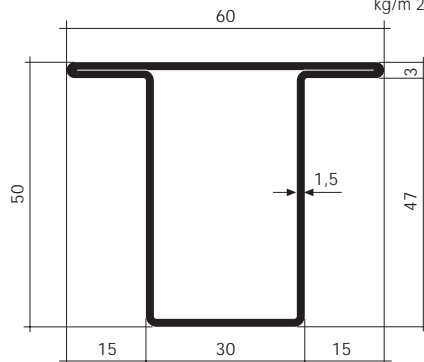
**SF 1/B** ● 70%

kg/m 2,15



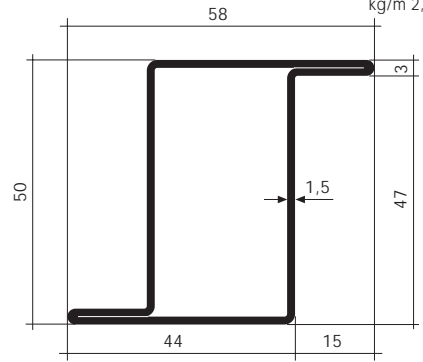
**SF 2/B** ● 70%

kg/m 2,52



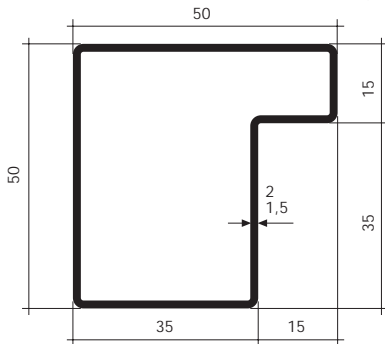
**SF 3/B** ● 70%

kg/m 2,52

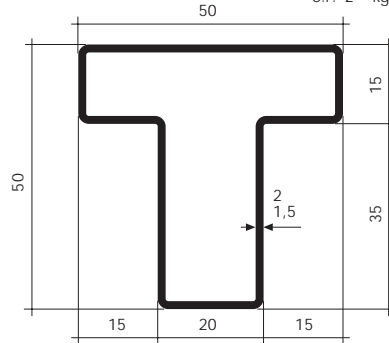


**16A**

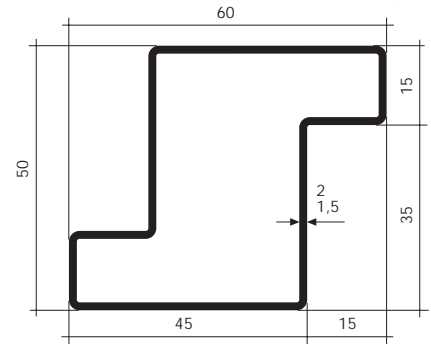
● 70%

S.P. 1,5 = kg/m 2,33  
S.P. 2 = kg/m 3,08**16B**

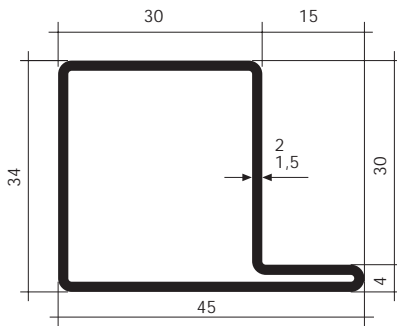
● 70%

S.P. 1,5 = kg/m 2,33  
S.P. 2 = kg/m 3,08**16Z**

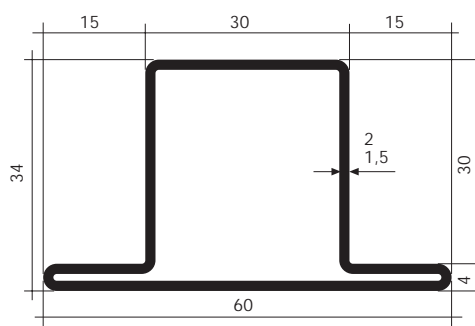
● 70%

S.P. 1,5 = kg/m 2,56  
S.P. 2 = kg/m 3,39**BSP1 - S715-S44**

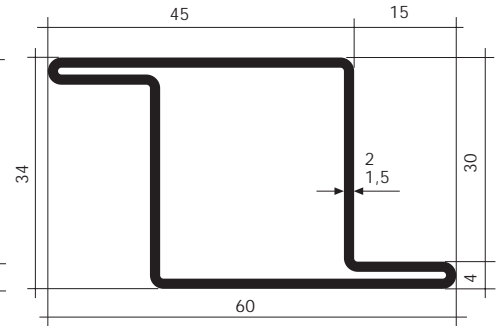
● 90%

S.P. 1,5 = kg/m 1,70  
S.P. 2 = kg/m 2,37**BSP2 - S714-S43**

● 90%

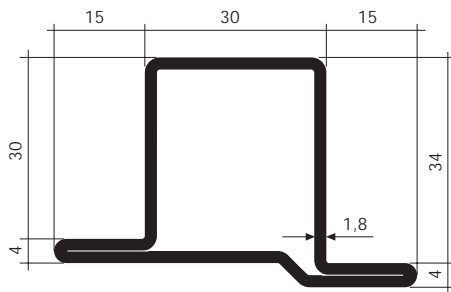
S.P. 1,5 = kg/m 2,16  
S.P. 2 = kg/m 2,86**BSP3 - S713-S42**

● 90%

S.P. 1,5 = kg/m 2,16  
S.P. 2 = kg/m 2,86**BSP4**

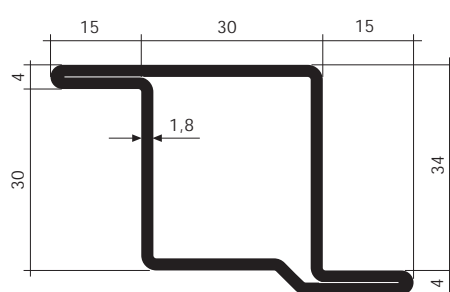
● 80%

kg/m 2,72

**BSP5**

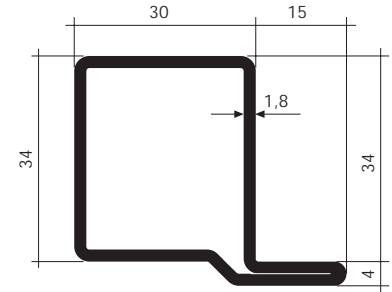
● 80%

kg/m 2,72

**BSP6**

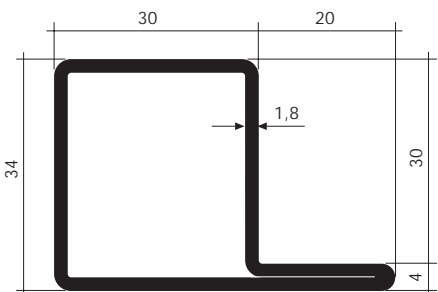
● 80%

kg/m 2,28

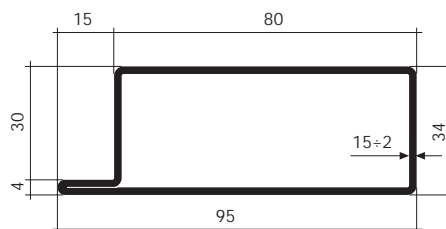
**BSP7**

● 90%

kg/m 2,53

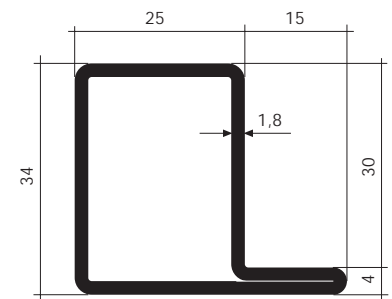
**S41**

● 50%

S.P. 1,5 = kg/m 3,02  
S.P. 2 = kg/m 3,94**BST1**

● 90%

kg/m 2,06

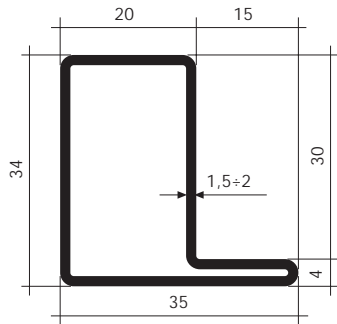


**BST2 - S703-S222-S47**

● 90%

**RP 144**

S.P. 1,5 = kg/m 1,61  
S.P. 2 = kg/m 2,12

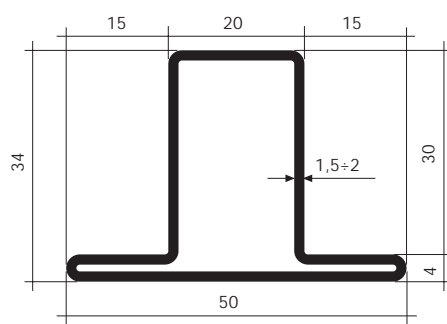


**BST3 - S702-S221-S46**

● 90%

**RP 143**

S.P. 1,5 = kg/m 1,94  
S.P. 2 = kg/m 2,56

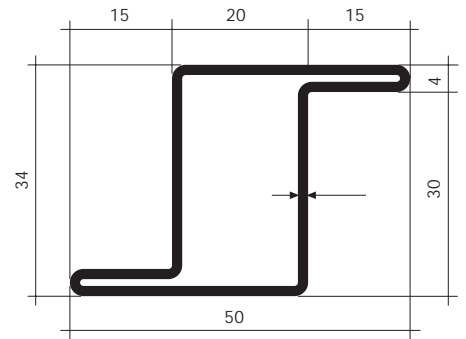


**BST4 - S701-S45**

● 90%

**RP 169**

kg/m 2,56

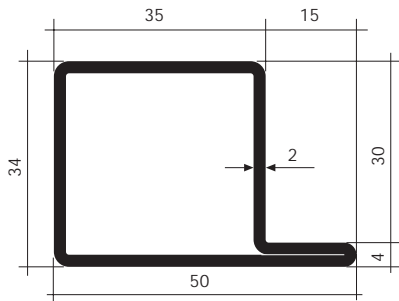


**BST5**

● 80%

**RP 106**

kg/m 2,56

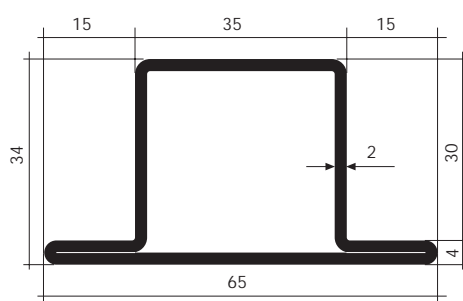


**BST7**

● 80%

**RP 105**

kg/m 3,04

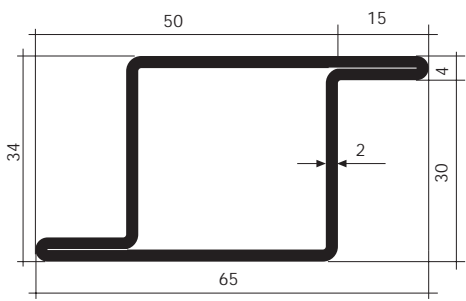


**BST8**

● 80%

**RP 139**

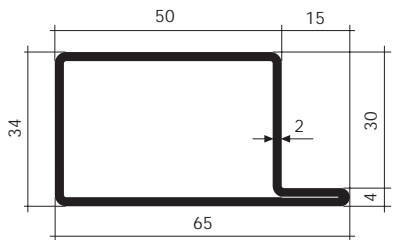
kg/m 3,04



**BST6 - S25**

● 60%

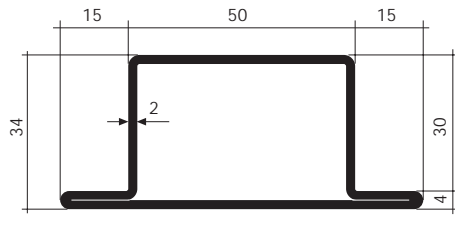
kg/m 3,01



**BST6A - S24-RP103**

● 60%

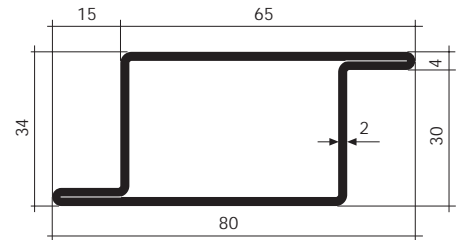
kg/m 3,2



**BST6B - S23**

● 60%

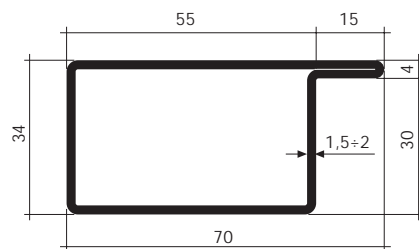
kg/m 3,45



**BSV1 - S28-RP104**

● 60%

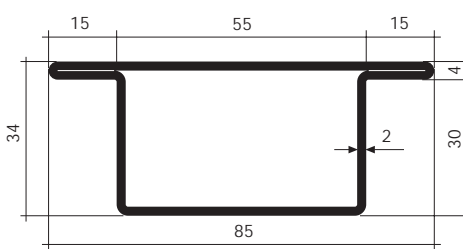
kg/m 2,15



**BSV2 - S27-RP150**

● 60%

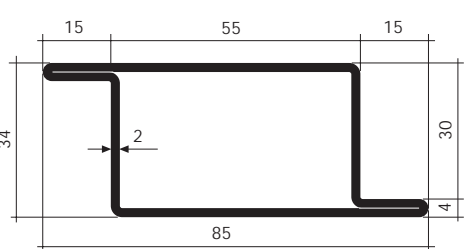
kg/m 3,65



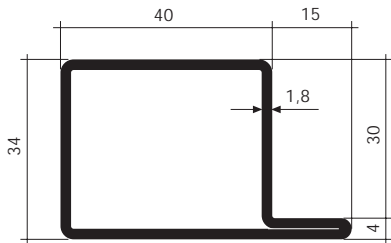
**BSV3 - S26-RP1190**

● 60%

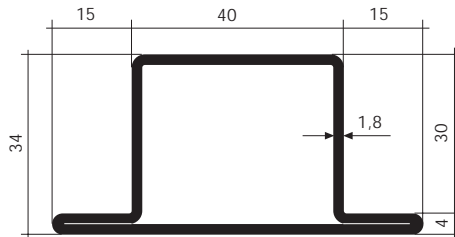
kg/m 3,65



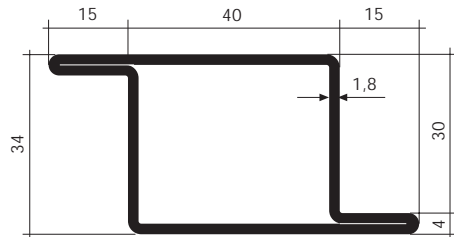
**BSV4** ● 70%  
kg/m 2,47



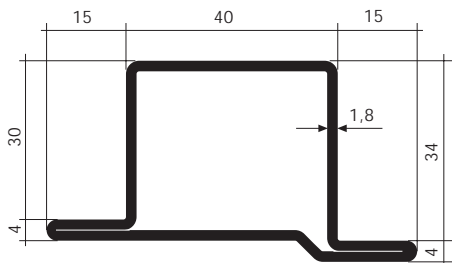
**BSV5 - RP1050** ● 70%  
kg/m 2,91



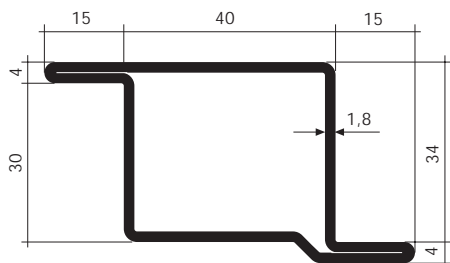
**BSV6** ● 70%  
kg/m 2,91



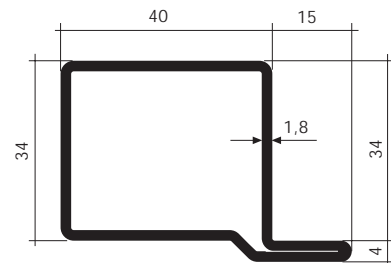
**BSV7** ● 70%  
kg/m 3,03



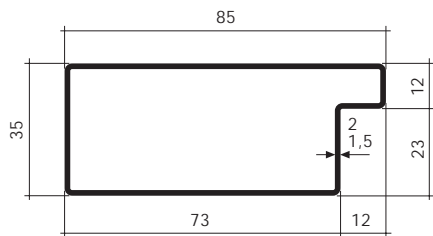
**BSV8** ● 70%  
kg/m 3,03



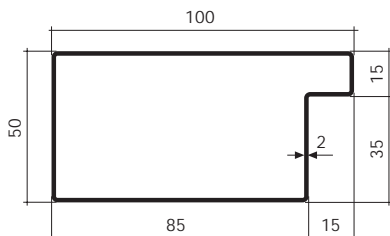
**BSV9** ● 70%  
kg/m 2,55



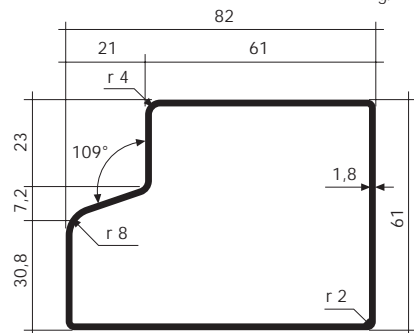
**2D** ● 50%  
S.P. 1,5 = kg/m 2,78  
S.P. 2 = kg/m 3,66



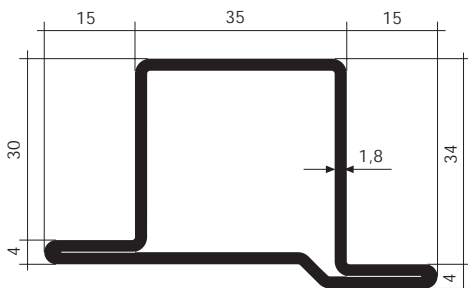
**16D** ● 40%  
kg/m 4,65



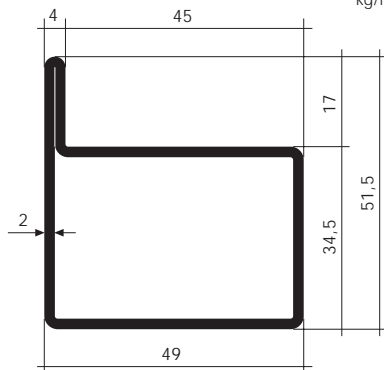
**T. 1965** ● 50%  
kg/m 3,87



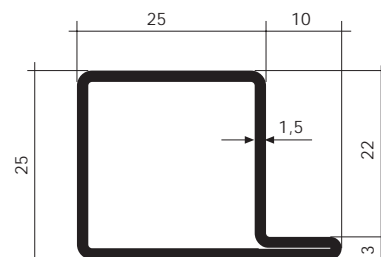
**BST9 - RP140** ● 80%  
kg/m 2,88



**T. 1372** ● 70%  
kg/m 3,06



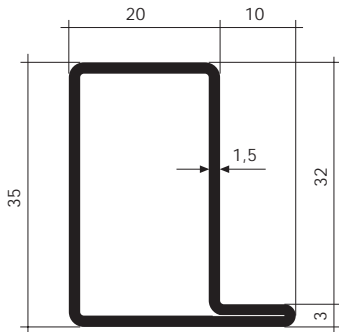
**D4** ● 100%  
kg/m 1,39



**BSD5**

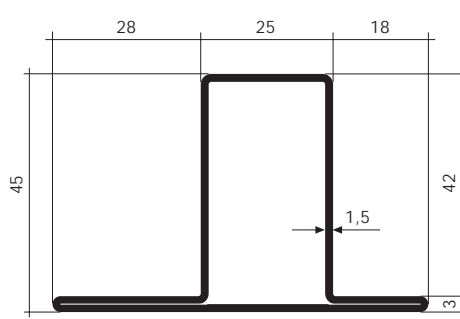
● 100%

kg/m 1,52

**LS15D**

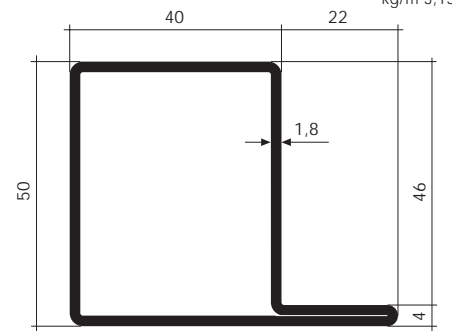
● 70%

kg/m 2,68

**E8 - RP1072**

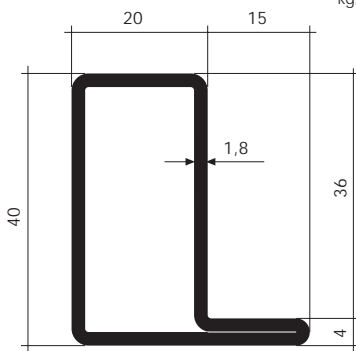
● 70%

kg/m 3,13

**E1 - RP1114**

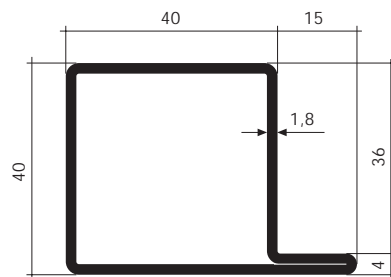
● 90%

kg/m 1,52

**E4 - RP1008**

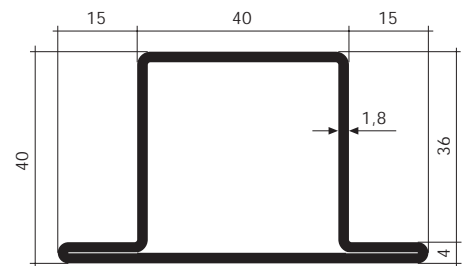
● 70%

kg/m 2,65

**E5 - RP152**

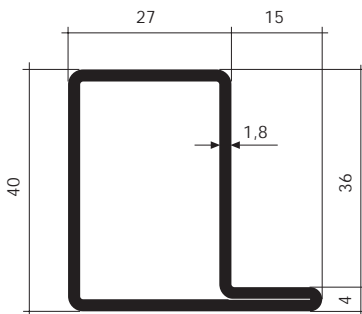
● 70%

kg/m 3,07

**BSL1**

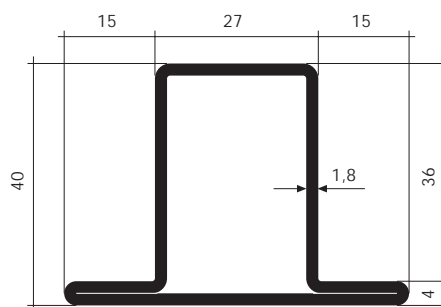
● 80%

kg/m 2,27

**BSL2**

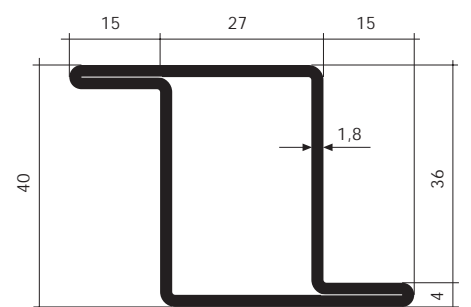
● 80%

kg/m 2,7

**BSL3**

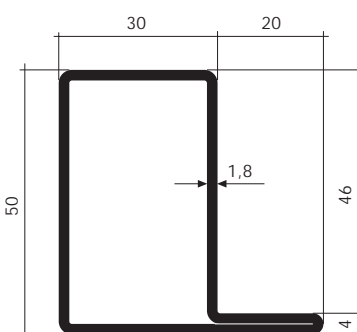
● 80%

kg/m 2,7

**BSM1**

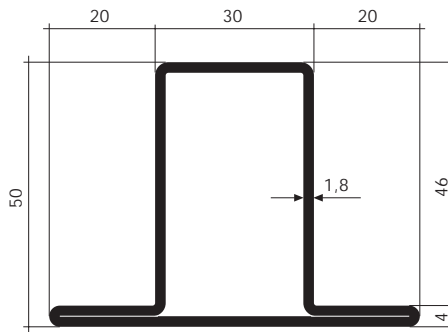
● 70%

kg/m 2,8

**BSM2**

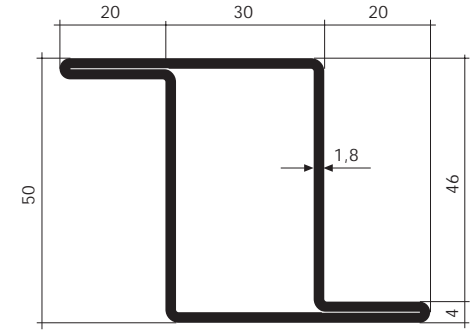
● 70%

kg/m 3,36

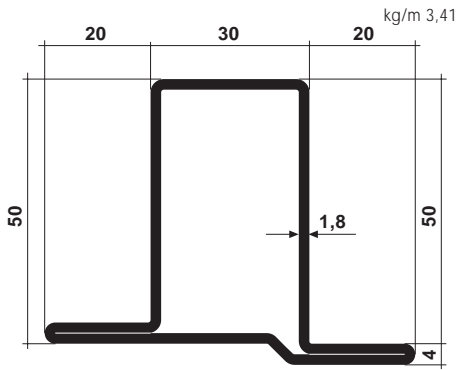
**BSM3**

● 70%

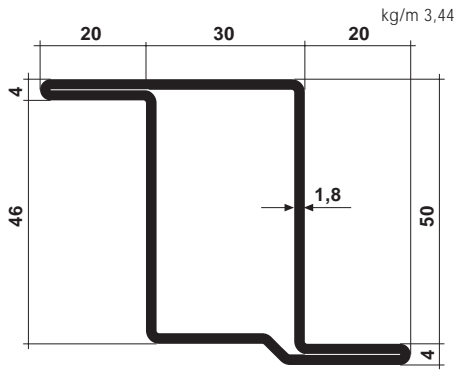
kg/m 3,36



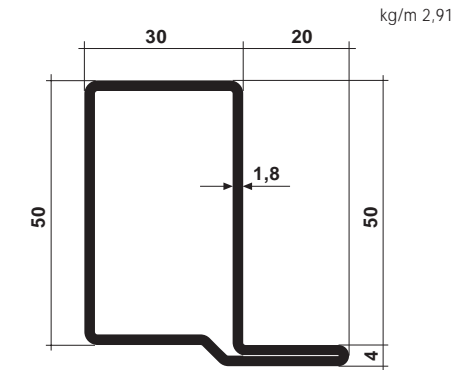
**BSM4** ● 70% kg/m 3,41



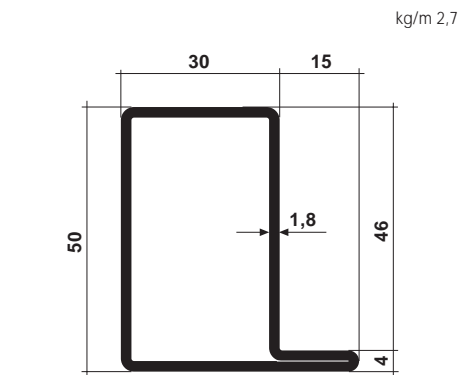
**BSM5** ● 70% kg/m 3,44



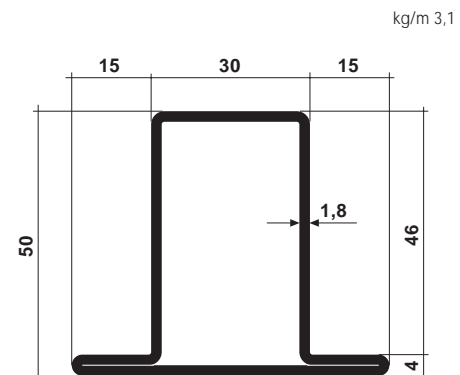
**BSM6** ● 70% kg/m 2,91



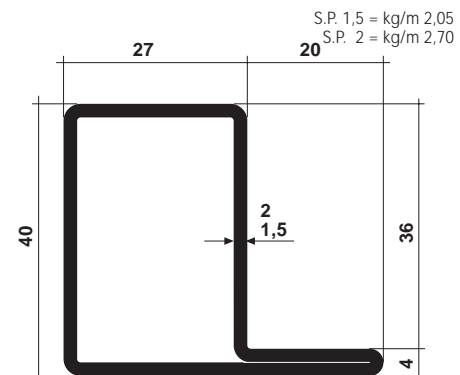
**BSM1 bis** ● 70% kg/m 2,7



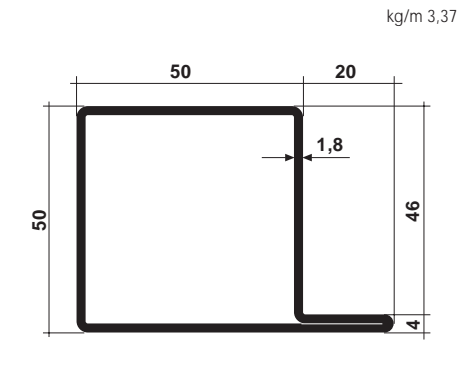
**BSM2 bis** ● 70% kg/m 3,1



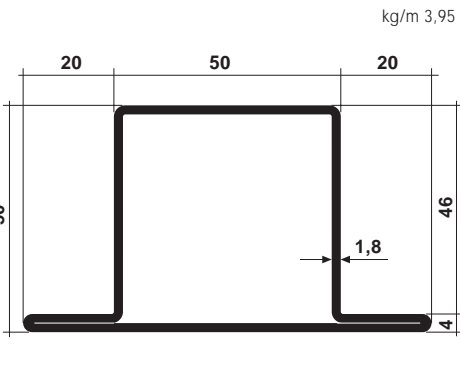
**BSL4** ● 90%



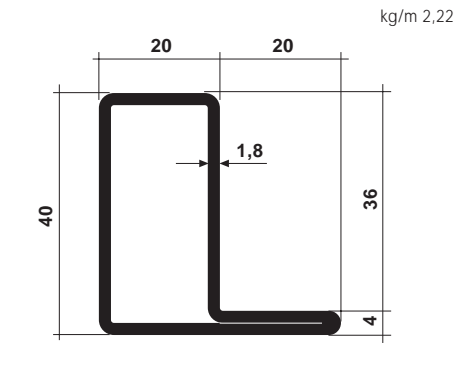
**SN1** ● 60% kg/m 3,37



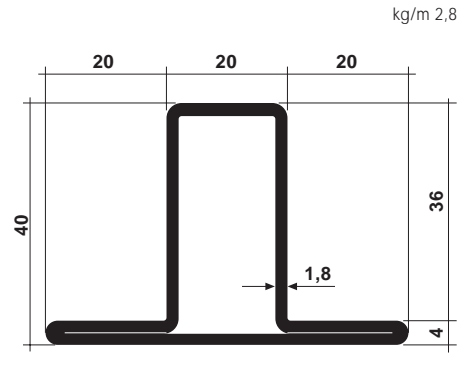
**SN2** ● 60% kg/m 3,95



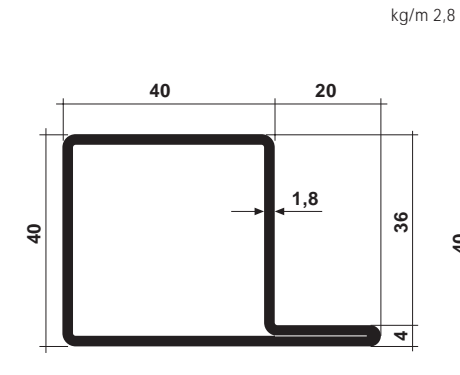
**SH1** ● 80% kg/m 2,22



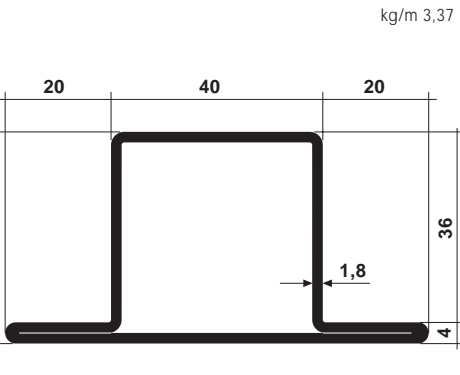
**SH2** ● 80% kg/m 2,8



**SI1 - RP1683** ● 70% kg/m 2,8



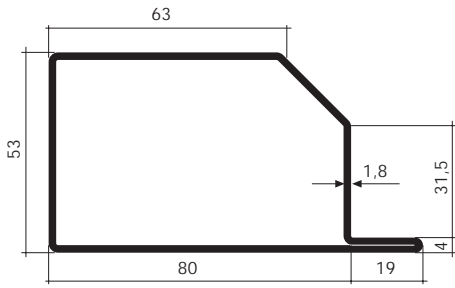
**SI2** ● 70% kg/m 3,37



ML1

● 50%

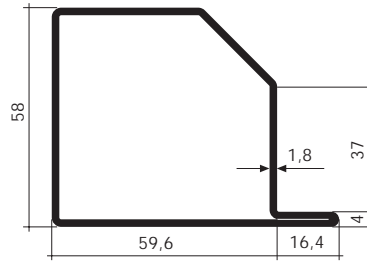
kg/m 4,23



ML2

● 50%

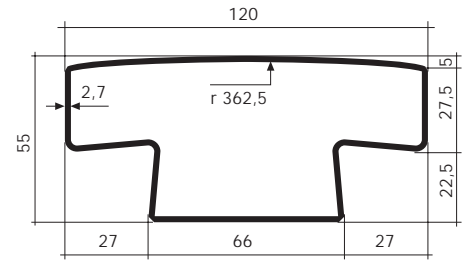
kg/m 3,69



S8

● 40%

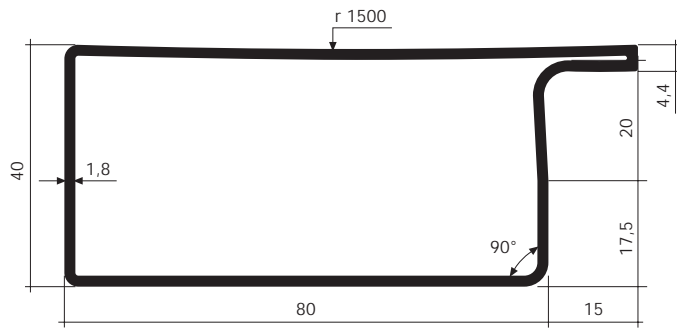
kg/m 7,12



TU15

● 80%

kg/m 3,89



TU16

● 80%

kg/m 3,92

