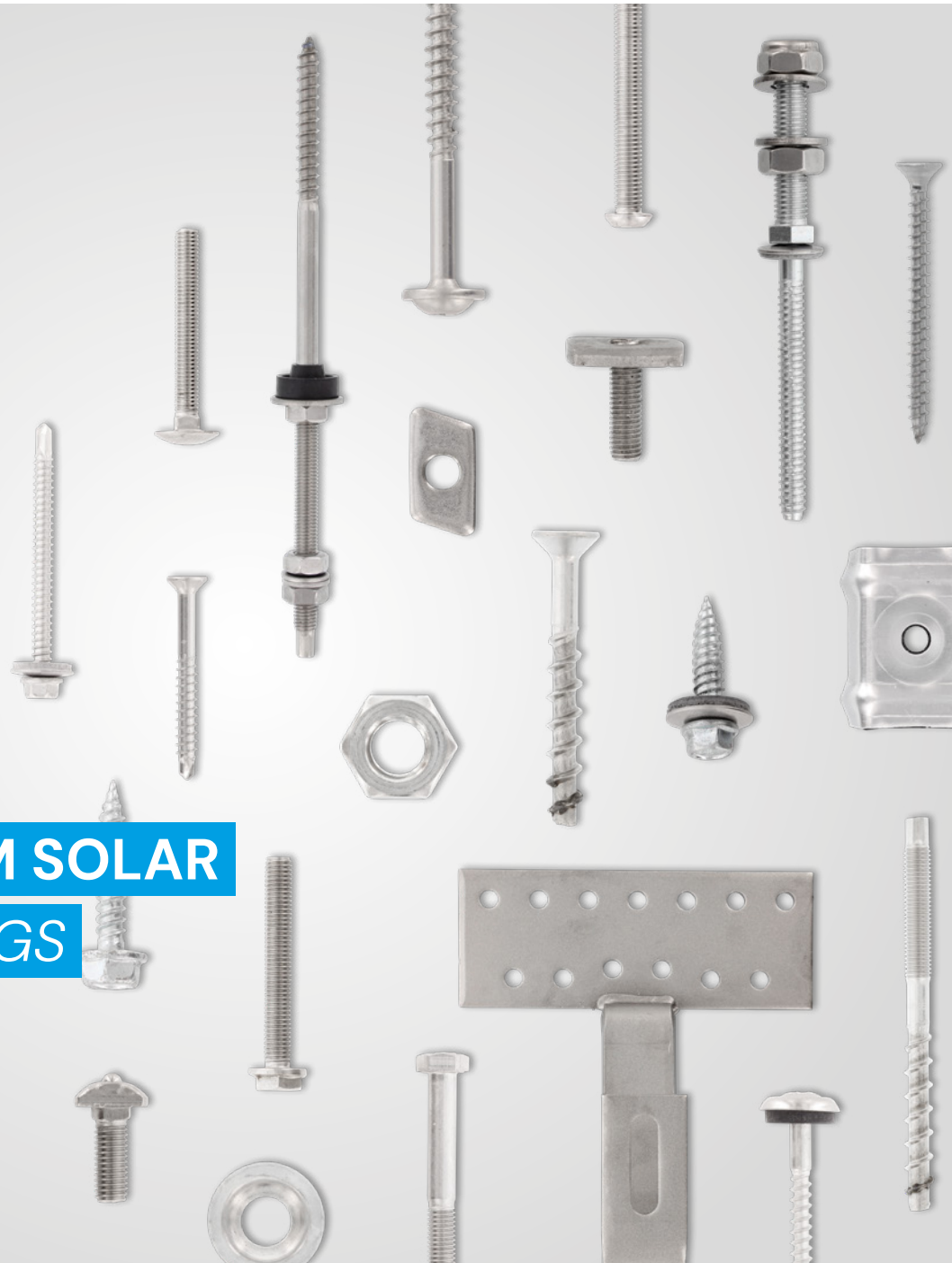


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2025  

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**Legenda / legend**

Artigo da DIN 

Artigo da ART 

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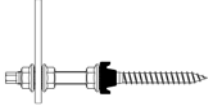

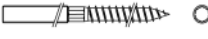







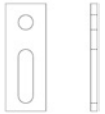

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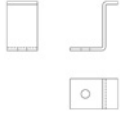
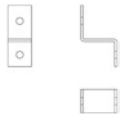


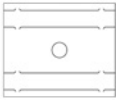
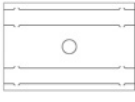






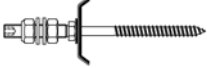

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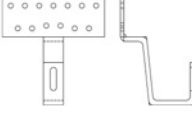
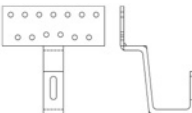
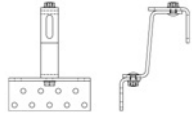
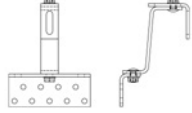
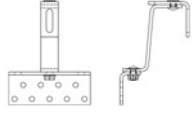
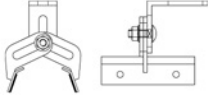







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











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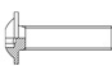











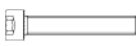

















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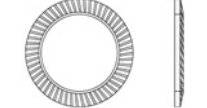




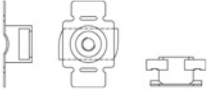
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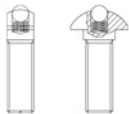
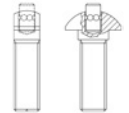



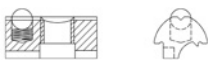
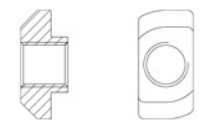







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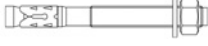









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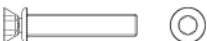


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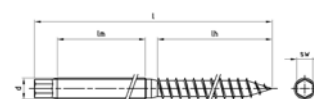
## Artigo 908220 A2 Pernos de duas roscas com hexágono

Art. 9082  
A2

Item 908220 A2

Hanger bolts with hexagon end

d	l	lh	lm	Tamanho Drive size	Número de artigo Item Number	
10	160	67	70	SW 7	90822010 160	50
	180	67	85	SW 7	90822010 180	50
	200	67	85	SW 7	90822010 200	50
	250	67	85	SW 7	90822010 250	50
	300	67	150	SW 7	90822010 300	50
12	200	80	100	SW 9	90822012 200	50
	250	100	100	SW 9	90822012 250	50
	300	100	150	SW 9	90822012 300	50
	350	100	195	SW 9	90822012 350	50
	400	100	220	SW 9	90822012 400	50



### UTILIZAÇÕES

Suspensão em tetos de caminhos de cabos, tubos, travessas etc.

Para fixação de subestruturas no setor solar

Para o comércio especializado do setor solar

Diferentes versões e execuções

### APPLICATIONS

Ceiling suspension for cable trays, pipes, truss etc.

For fixing of substructures in the solar sector

For the solar dealer

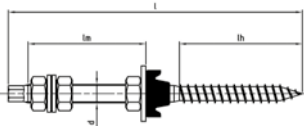
Various versions and completions



**Art. 9082  
A2**

**Artigo 908221 A2  
Pernos duas roscas com DIN 125 + 9021 + 934 + EPDM**

Item 908221 A2  
Hanger bolts with DIN 125 + 9021 + 934 + EPDM



d	l	lh	lm	Tamanho Drive size	Número de artigo Item Number	
8	180	62	50	*	9082218 180	50
10	160	67	70	SW 7	90822110 160	50
	180	67	85	SW 7	90822110 180	50
	200	67	85	SW 7	90822110 200	50
	250	67	85	SW 7	90822110 250	50
	300	67	150	SW 7	90822110 300	50
12	200	80	100	SW 9	90822112 200	50
	250	100	100	SW 9	90822112 250	50
	300	100	150	SW 9	90822112 300	50
	350	100	195	SW 9	90822112 350	50
	400	100	220	SW 9	90822112 400	50

**UTILIZAÇÕES**

Para o comércio especializado do setor solar  
Diferentes versões e execuções

**APPLICATIONS**

For solar dealers.  
Various versions and completions.

**CARACTERÍSTICAS**

\* sem sextavado entre as roscas

**FEATURES**

\* No drive between the threads




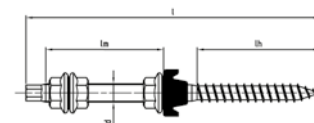
## Artigo 908222 A2 Pernos de duas roscas com DIN 6923 + EPDM

Art. 9082  
A2

Item 908222 A2

Hanger bolts with DIN 6923 + EPDM

d	l	lh	lm	Tamanho Drive size	Número de artigo Item Number	
10	160	67	70	SW 7	90822210 160	50
	180	67	85	SW 7	90822210 180	50
	200	67	85	SW 7	90822210 200	50
	250	67	85	SW 7	90822210 250	50
	300	67	150	SW 7	90822210 300	50
12	200	80	100	SW 9	90822212 200	50
	250	100	100	SW 9	90822212 250	50
	300	100	150	SW 9	90822212 300	50
	350	100	195	SW 9	90822212 350	50
	400	100	220	SW 9	90822212 400	50



### UTILIZAÇÕES

Para o comércio especializado do setor solar

Diferentes versões e execuções

### APPLICATIONS

For solar dealers.

Various versions and completions.



**Art. 9082  
A2**

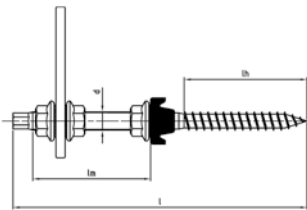
**Artigo 908223 A2**  
**Pernos duas roscas c/placa adapt., + DIN 6923+EPDM**

*Item 908223 A2*

*Hanger bolts with adapter plate + DIN 6923 + EPDM*



d	l	lh	lm	Tamanho Drive size	Número de artigo Item Number	
10	160	67	70	SW 7	90822310 160	50
	180	67	85	SW 7	90822310 180	50
	200	67	85	SW 7	90822310 200	50
	250	67	85	SW 7	90822310 250	50
	300	67	150	SW 7	90822310 300	50
12	200	80	100	SW 9	90822312 200	50
	250	100	100	SW 9	90822312 250	50
	300	100	150	SW 9	90822312 300	50
	350	100	195	SW 9	90822312 350	50
	400	100	220	SW 9	90822312 400	50



**UTILIZAÇÕES**

Para o comércio especializado do

setor solar

Diferentes versões e execuções

**APPLICATIONS**

For solar dealers.

Various versions and completions.



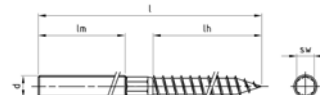
## Artigo 9082 A2 Pernos de duas roscas com/sem chave plana

Art. 9082  
A2

Item 9082 A2

Hanger bolts with/without across flat

d	l	lh	lm	Tamanho Drive size	Número de artigo Item Number		
6	50	37	11	*	908226 50	100	
	60	37	20	*	908226 60	100	
	70	47	20	*	908226 70	100	
	80	52	25	*	908226 80	100	
	90	52	35	*	908226 90	100	
	100	52	45	*	908226 100	100	
	120	72	45	*	908226 120	100	
	130	52	50	*	908226 130	100	
	140	52	50	*	908226 140	100	
	150	52	50	*	908226 150	100	
	160	52	50	*	908226 160	100	
	180	52	50	*	908226 180	100	
	8	50	37	11	*	908228 50	100
		60	37	20	*	908228 60	100
70		37	25	*	908228 70	100	
80		37	30	SW 6	908228 80	100	
90		37	40	SW 6	908228 90	100	
100		47	40	SW 6	908228 100	100	
110		47	40	SW 6	908228 110	100	
120		47	50	SW 6	908228 120	100	
130		47	50	SW 6	908228 130	100	
140		47	50	SW 6	908228 140	100	
150		47	50	*	908228 150	100	
160		62	50	*	908228 160	100	
180		62	50	*	908228 180	50	
200		62	50	*	908228 200	50	
220	62	50	*	908228 220	50		
10	60	37	20	*	9082210 60	100	
	80	47	20	SW 8	9082210 80	100	
	90	57	20	SW 8	9082210 90	100	
	100	57	30	SW 8	9082210 100	100	
	120	57	50	SW 8	9082210 120	100	
	140	57	50	SW 8	9082210 140	50	
	150	57	50	SW 8	9082210 150	50	
	160	57	80	SW 8	9082210 160	50	
	180	57	100	SW 8	9082210 180	50	
	200	57	100	SW 8	9082210 200	50	
	220	57	100	SW 8	9082210 220	50	
	250	57	100	SW 8	9082210 250	50	
	12	80	57	20	*	9082212 80	50
		100	57	25	SW 10	9082212 100	50
120		57	40	SW 10	9082212 120	50	
140		57	40	SW 10	9082212 140	50	
160		57	80	SW 10	9082212 160	50	
180		57	100	SW 10	9082212 180	50	
200		57	100	SW 10	9082212 200	50	
250		57	100	SW 10	9082212 250	50	
300		100	150	SW 10	9082212 300	50	
350		100	205	*	9082212 350	50	



### UTILIZAÇÕES

Suspensão em tetos de caminhos de cabos, tubos, travessas etc.

Para fixação de subestruturas no setor solar

Para o comércio especializado do setor solar

Diferentes versões e execuções  
\* sem sextavado entre as roscas

### APPLICATIONS

Ceiling suspension for cable trays, pipes, truss etc.

For fixing of substructures in the solar sector

For the solar dealer

Various versions and completions  
\* No drive between the threads

### CARACTERÍSTICAS

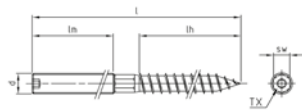
\* sem sextavado entre as roscas

### FEATURES

\* No drive between the threads



**Art. 9082  
A2**



**UTILIZAÇÕES**

Suspensões de teto para caminhos de cabos, tubos, travessas, etc.

Para a fixação de subestruturas no sector solar

Para o sector solar Diversas concepções e personalizações

**APPLICATIONS**

Ceiling suspension for cable trays, pipes, truss etc.

For fixing of substructures in the solar sector

For the solar dealer

Various versions and completions

**Art. 9082 A2 TX**  
**Pernos de duas roscas com superfície para chave**

Item 9082 A2 TX


Hanger bolts with six lobe drive

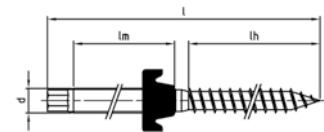
d	l	lh	lm	Tamanho Drive size	Número de artigo Item Number	
<b>6</b>	50	37	11	TX15	90822T6 50	100
	60	37	20	TX15	90822T6 60	100
	70	47	20	TX15	90822T6 70	100
	80	52	25	TX15	90822T6 80	100
	90	52	35	TX15	90822T6 90	100
	100	52	45	TX15	90822T6 100	100
	120	72	45	TX15	90822T6 120	100
<b>8</b>	50	27	20	TX25	90822T8 50	100
	60	37	20	TX25	90822T8 60	100
	70	37	25	TX25	90822T8 70	100
	80	37	30	TX25	90822T8 80	100
	90	37	40	TX25	90822T8 90	100
	100	47	40	TX25	90822T8 100	100
	110	47	40	TX25	90822T8 110	100
	120	47	50	TX25	90822T8 120	100
	130	47	50	TX25	90822T8 130	100
	140	47	50	TX25	90822T8 140	100
	150	47	50	TX25	90822T8 150	100
	160	62	50	TX25	90822T8 160	100
	<b>10</b>	60	37	20	TX25	90822T10 60
80		47	20	TX25	90822T10 80	100
100		57	30	TX25	90822T10 100	100
120		57	50	TX25	90822T10 120	100
140		57	50	TX25	90822T10 140	50
160		57	80	TX25	90822T10 160	50

**Artigo 9082 A2**  
**Parafusos de suspensão montados com vedante EPDM preto**

**Art. 9082**  
**A2**

Item 9082 A2  
 Hanger bolts assembled with EPDM seal black

d	l	lh	lm	Número de artigo Item Number	
10	180	67	85	90822510 180	50
	200	67	85	90822510 200	50
	250	67	85	90822510 250	50
12	200	80	100	90822512 200	50
	250	100	100	90822512 250	50
	300	100	150	90822512 300	50
	350	100	195	90822512 350	50
	400	100	220	90822512 400	50



**UTILIZAÇÕES**

Suspensões de teto para caminhos de cabos, tubos, travessas, etc.  
 Para a fixação de subestruturas no sector solar  
 Para o sector solar  
 Diversas concepções e personalizações

**APPLICATIONS**


Ceiling suspension for cable trays, pipes, truss etc.  
 For fixing of substructures in the solar sector  
 For the solar dealer  
 Various versions and completions

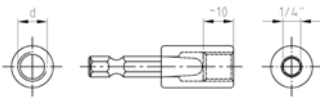


## Art. 9164



Item 9164  
BIT for dowel screws


d	l	Número de artigo Item Number	
6	50	91646	1
8	50	91648	1
10	50	916410	1
12	50	916412	1

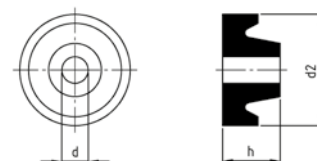


## Artigo 9082 Vedação EPDM preta

Item 9082  
EPDM-Seal black

Art. 9082  
EPDM

d	d2	h	xyz	Número de artigo Item Number	
6	25	13	M8	9082EPDM8	500
8	25	13	M10	9082EPDM10	500
9,5	25	13	M12	9082EPDM12	500



### UTILIZAÇÕES

A vedação EPDM é utilizada em chapas onduladas de fibrocimento, coberturas de chapas trapezoidais e em coberturas em ardósia. Um perno de duas roscas é aparafusado através da cobertura, a vedação EPDM anteriormente colocada com cone de vedação e colar de suporte é bloqueada com uma porca flangeada. Dessa forma, é assegurada uma vedação perfeita do teto

### APPLICATIONS

The poetry EPDM finds your use with fiber cement-Wellplatten, trapezoid tin roofings as well as slate roofings. A floor screw is screwed together by the roof skin, the before drawn up poetry EPDM with Dichtkonus and edition alliance becomes with a flange mother countered Therefore an optimum roof sealing is guaranteed.

### CARACTERÍSTICAS

- Resistente a temperaturas de - 40 °C a + 100 °C
- Dureza Shore A:60°
- Resistente às intempéries
- Reticulação com enxofre

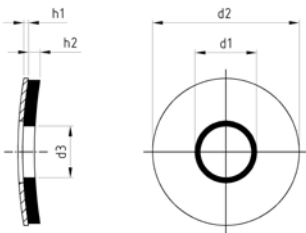
### FEATURES

- Resistant from - 40°C to + 100°C
- Shore A hardness: 60°
- Weatherproof
- sulphure cured

**Art. 9055  
A2**

**Artigo 9055 A2 arqueadas  
Anilhas vedantes com EPDM cinzento**

*Item 9055 A2 arched  
Sealing washers with EPDM coating*



d1	d2	d3	h1	h2	Número de artigo Item Number	
4,8	14	3,4	0,8	2	9055248 14	1000
	12	3,4	0,8	2	9055248 12	1000
5,3	19	3,8	0,8	2	9055253 19	1000
	16	3,8	0,8	2	9055253 16	1000
	14	3,8	0,8	2	9055253 14	1000
	12	3,8	0,8	2	9055253 12	1000
6,2	16	4,2	0,8	2	9055262 16	1000
6,7	29	5,2	0,8	2	9055267 29	500
	25	5,2	0,8	2	9055267 25	1000
	22	5,2	0,8	2	9055267 22	1000
	19	5,2	0,8	2	9055267 19	1000
	16	5,2	0,8	2	9055267 16	1000
8,4	22	7	0,8	2	9055284 22	1000
	19	7	0,8	2	9055284 19	1000
	16	7	0,8	2	9055284 16	1000
	25	7	0,8	2	9055284 25	1000
	29	7	0,8	2	9055284 29	500
10,5	25	8,8	0,8	2	90552105 25	1000
	29	8,8	0,8	2	90552105 29	500
13	29	11	0,8	2	9055213 29	500

**UTILIZAÇÕES**

Para parafusos de cabeça sextavada


**APPLICATIONS**

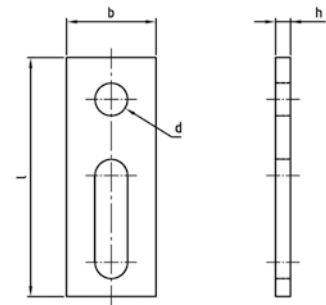
For Flat head screws

## Artigo 9035 A2 Placas

Item 9035 A2  
Adapter plates

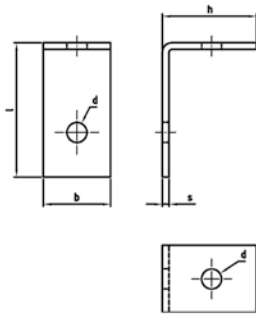
Art. 9035  
A2

d	l	h	b	Número de artigo Item Number	
9	82	5	40	9035282 40/9	25
11	80	5	30	9035280 30/11	100
	82	5	40	9035282 40/11	25
13	110	5	40	90352110 40/11	25
	125	5	40	90352125 40/11-9	25
	82	5	40	9035282 40/13	25
	82	5	40	9035282 40/13-9	25
	110	5	40	90352110 40/13	25
	125	5	40	90352125 40/13-9	25



APPLICATIONS  
Adaptor sheets to connect hanger bolts to profiles.

**Art. 9036  
A2**



**APPLICATIONS**  
Brackets and connectors to connect profiles.

**Artigo 9036 A2  
Ângulo em L**

*Item 9036 A2  
L-Angles*

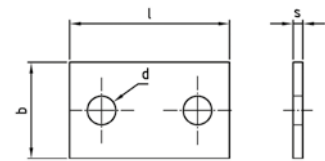
d	b	h	s	Dimensão Dimension	Furos son. Holes	Número de artigo Item Number	
9,2	30	42	3	60X42X30X3	2	90362034	100

## Artigo 9036 A2 União

Item 9036 A2  
Connectors

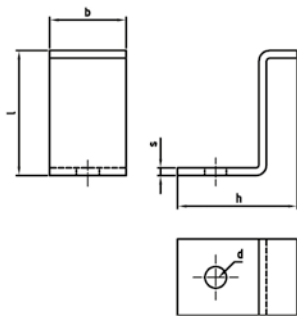
Art. 9036  
A2

d	l	b	s	Dimensão Dimension	Furos son. Holes	Número de artigo Item Number	
8,5	51	30	3	51X30X3	2	90362033	100



APPLICATIONS  
Brackets and connectors to connect profiles.

**Art. 9036  
A2**



**APPLICATIONS**  
Brackets and connectors to connect profiles.

**Artigo 9036 A2  
Ângulo**

*Item 9036 A2  
Angles*

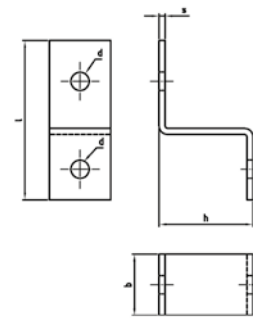
d	l	b	h	s	Dimensão Dimension	Furos son. Holes	Número de artigo Item Number	
8,5	46	30	47	3	35X46X13X3	1	90362036	100

## Artigo 9036 A2 Ângulo em Z

Item 9036 A2  
Z-Angles

Art. 9036  
A2

d	l	b	h	s	Dimensão Dimension	Furos son. Holes	Número de artigo Item Number	
9,2	77	30	45	3	46X45X30X3	2	90362035	100



APPLICATIONS  
Brackets and connectors to connect profiles.

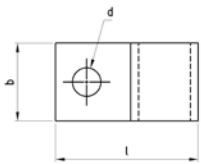
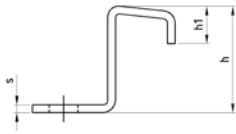
**Art. 9036  
A2**

**Artigo 9036 A2**

*Item 9036 A2  
Cross connector, blasted*



l	b	h	h1	s	Dimensão Dimension	Furos son. Holes	Número de artigo Item Number	
55	30	41	14,5	3	55x41x30x3	1	9036230 55 3	100




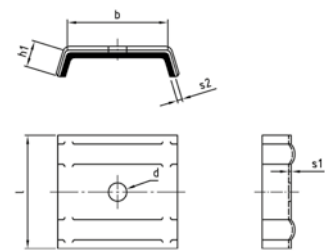
**APPLICATIONS**  
*Brackets and connectors to connect  
profiles.*

## Artigo 9183 Aluminium 17° / 40 mm Calotas forma H com vedação EPDM

Item 9183 Aluminium 17° / 40 mm  
Saddle washers with EPDM seal type H

Art. 9183  
Alumínio

d	b	h1	s1	s2	l	Número de artigo Item Number	
7,3	40	10	1	2	45	91830H	100



### UTILIZAÇÕES


Para montagem de acanaladuras  
altas de coberturas em poliéster

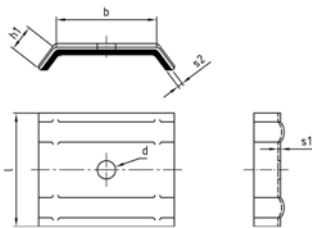
APPLICATIONS  
for fitting raised beads on polyester  
roofs.

**Art. 9183**  
**Alumínio**

**Artigo 9183 Aluminium 36° / 40 mm**  
**Calotas forma I com vedação EPDM**

*Item 9183 Aluminium 36° / 40 mm*  
*Saddle washers with EPDM seal type I*

d	b	h1	s1	s2	l	Número de artigo Item Number	
7,3	40	10	1	2	45	918301	100



**UTILIZAÇÕES**

Para montagem de acanaladuras  
altas de coberturas em poliéster


**APPLICATIONS**

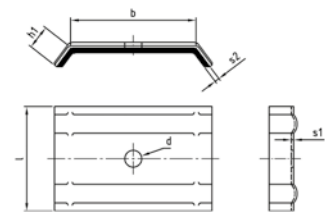
for fitting raised beads on polyester  
roofs.

## Artigo 9183 Aluminium 32° / 54 mm Calotas forma M com vedação EPDM

Item 9183 Aluminium 32° / 54 mm  
Saddle washers with EPDM seal type M

Art. 9183  
Alumínio

d	b	h1	s1	s2	l	Número de artigo Item Number	
7,3	54	10	1	2	45	91830M	100



### UTILIZAÇÕES

Para montagem de acanaladuras  
altas de coberturas em poliéster


### APPLICATIONS

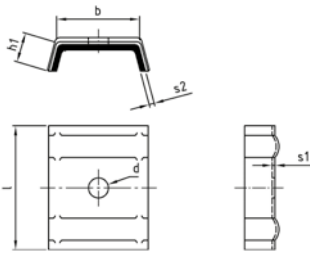
for fitting raised beads on polyester  
roofs.

**Art. 9183**  
**Alumínio**

**Artigo 9183 Aluminium 15° / 25 mm**  
**Calotas forma O com vedação EPDM**

*Item 9183 Aluminium 15° / 25 mm*  
*Saddle washers with EPDM seal type O*

d	b	h1	s1	s2	l	Número de artigo Item Number	
7,3	25	10	1	2	45	918300	100



**UTILIZAÇÕES**


Para montagem de acanaladuras  
altas de coberturas em poliéster

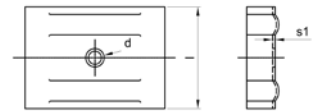
*APPLICATIONS*  
*for fitting raised beads on polyester*  
*roofs.*

**Art. 9183 Aluminium 48° / 33 mm**  
**Calotas forma T com vedação EPDM**

*Item 9183 Aluminium 48° / 33 mm*  
*Saddle washers with EPDM seal type T*

**Art. 9183**  
**Alumínio**

d	b	h1	s1	s2	l	Número de artigo Item Number	
7,3	33	13	1	2	40	91830T48 33	100



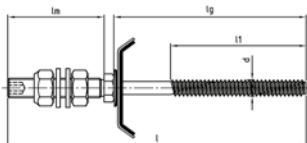
**UTILIZAÇÕES**

Para montagem de acanaladuras  
altas de coberturas em poliéster

*APPLICATIONS*

*for fitting raised beads on polyester  
roofs.*

**Art. 9182  
A2**



**UTILIZAÇÕES**

Informação técnica:

- Comprimento do parafuso recomendado = altura do perfil trapezoidal/espessura do painel sanduíche + 20 mm
- Por princípio, deve ser observada a homologação de construção.

Tabela de pré-perfuração para subestruturas:

Espessura do aço: Ø de pré-perfuração	
1,5 - 5,0 mm	6,8 mm
6,0 mm	7,0 mm
8,0 mm	7,2 mm
>10 mm	7,4 mm

**APPLICATIONS**

Technical information:

- Recommended screw length = trapeze profile height/sandwich thickness + 20 mm
- The building authority approval should always be noted.

Predrilling table for substructures:

Steel thickness	Predrilled Ø
1,5 - 5,0 mm	6,8 mm
6,0 mm	7,0 mm
8,0 mm	7,2 mm
>10 mm	7,4 mm



**Artigo 9182 A2 tipo BZ DS**  
**Fxçã sistemas solares c/pino e anilha vedante 19mm**

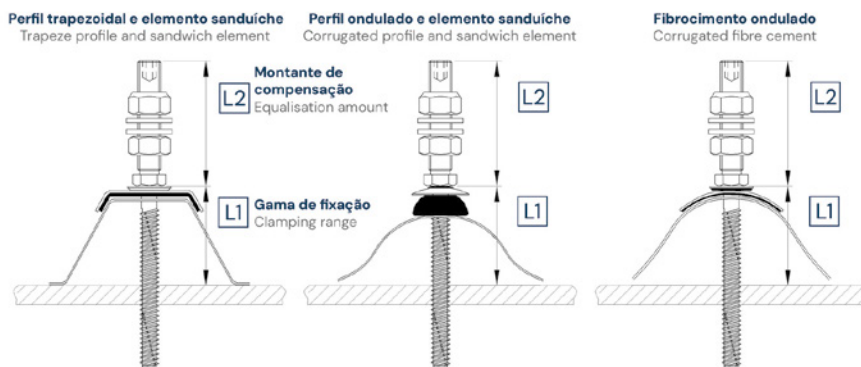
Item 9182 A2 type BZ DS

Solar fastener cone point and sealing washer 19 mm

d	l	lg	lm	ll	de fixação Clamp.area	Tamanho Drive size	Número de artigo Item Number	
8	136	80	50	70	15-60	SW 5	9182280 80/50	10
	156	100	50	70	35-80	SW 5	9182280 100/50	10
	156	80	70	70	15-60	SW 5	9182280 80/70	10
	176	100	70	70	35-80	SW 5	9182280 100/70	10
	181	125	50	70	60-105	SW 5	9182280 125/50	10
	201	125	70	70	60-105	SW 5	9182280 125/70	10
	206	150	50	70	85-130	SW 5	9182280 150/50	10
	216	160	50	70	95-140	SW 5	9182280 160/50	10
	226	150	70	70	85-130	SW 5	9182280 150/70	10
	236	160	70	70	95-140	SW 5	9182280 160/70	10
256	200	50	70	135-180	SW 5	9182280 200/50	10	
276	200	70	70	135-180	SW 5	9182280 200/70	10	



- 1** Chave hexagonal SW5  
Hexagonal socket SW5
- 2** Porca de bloqueio DIN 985 M 10 - A2  
Locking nut DIN 985 M 10 - A2
- 3** Anilhas DIN 125 A2  
Washers DIN 125 A2
- 4** Porca sextavada DIN 934 M 10 A2-70  
Hexagonal nuts DIN 934 M 10 A2-70
- 5** Largura dos apartamentos SW13  
Width across flat SW13
- 6** Fixador solar S+P, Fio metálico  
S+P solar fastener, metal thread
- 7** Disco de vedação DS Ø 19 mm  
Sealing washer DS Ø 19 mm
- 8** Tampa esférica  
Cap



# Artigo 9182 A2 tipo BZ FZD

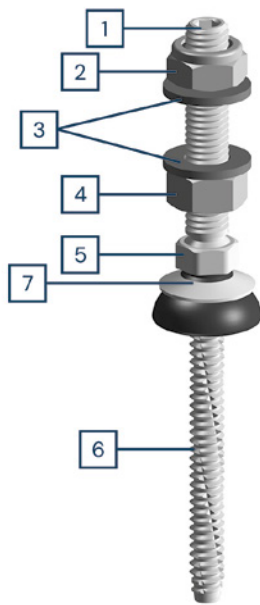
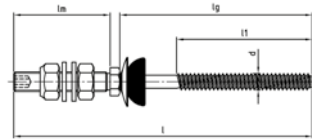
## Fixação para sistemas solares com pino e vedação

Art. 9182  
A2

Item 9182 A2 type BZ FCS

Solar fastener with cone point and umbrella washer

d	l	lg	lm	ll	de fixação Clamp.area	Tamanho Drive size	Número de artigo Item Number	
8	136	80	50	70	15-55	SW 5	91822080 80/50	10
	156	100	50	70	30-75	SW 5	91822080 100/50	10
	156	80	70	70	15-55	SW 5	91822080 80/70	10
	176	100	70	70	30-75	SW 5	91822080 100/70	10
	181	125	50	70	55-100	SW 5	91822080 125/50	10
	201	125	70	70	55-100	SW 5	91822080 125/70	10
	206	150	50	70	80-125	SW 5	91822080 150/50	10
	216	160	50	70	90-135	SW 5	91822080 160/50	10
	226	150	70	70	80-125	SW 5	91822080 150/70	10
	236	160	70	70	90-135	SW 5	91822080 160/70	10
256	200	50	70	130-175	SW 5	91822080 200/50	10	
276	200	70	70	130-175	SW 5	91822080 200/70	10	



- 1** Chave hexagonal SW5  
Hexagonal socket SW5
- 2** Porca de bloqueio DIN 985 M 10 – A2  
Locking nut DIN 985 M 10 – A2
- 3** Anilhas DIN 125 A2  
Washers DIN 125 A2
- 4** Porca sextavada DIN 934 M 10 A2-70  
Hexagonal nuts DIN 934 M 10 A2-70
- 5** Largura dos apartamentos SW13  
Width across flat SW13
- 6** Fixador solar S+P, Fio metálico  
S+P solar fastener, metal thread
- 7** Vedação em fibrocimento ondulado FZD  
Corrugated fibre cement seal FZD

### UTILIZAÇÕES

#### Informação técnica:

- Comprimento do parafuso recomendado = altura do perfil trapezoidal/espessura do painel sanduíche + 20 mm
- Por princípio, deve ser observada a homologação de construção.

#### Tabela de pré-furação para subestruturas:

Espessura do aço:	Ø de pré-perfuração
1,5 – 5,0 mm	6,8 mm
6,0 mm	7,0 mm
8,0 mm	7,2 mm
>10 mm	7,4 mm

### APPLICATIONS

#### Technical information:

- Recommended screw length = trapeze profile height/sandwich thickness + 20 mm
- The building authority approval should always be noted.

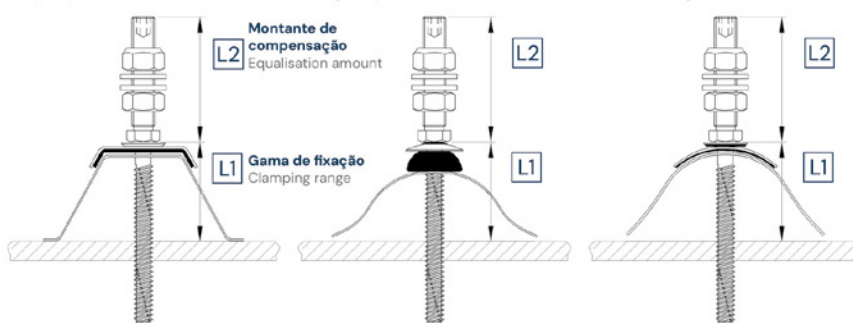
#### Predrilling table for substructures:

Steel thickness	Predrilled Ø
1,5 – 5,0 mm	6,8 mm
6,0 mm	7,0 mm
8,0 mm	7,2 mm
>10 mm	7,4 mm

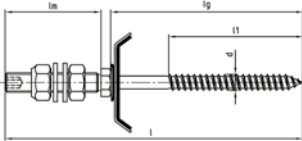
**Perfil trapezoidal e elemento sanduíche**  
Trapeze profile and sandwich element

**Perfil ondulado e elemento sanduíche**  
Corrugated profile and sandwich element

**Fibrocimento ondulado**  
Corrugated fibre cement



**Art. 9182  
A2**



**UTILIZAÇÕES**

Para subestruturas de madeira com anilha vedante imperdível incl. calotas

**Informação técnica:**

Comprimento do parafuso recomendado = altura do perfil trapezoidal/espessura do painel sanduíche +20 mm.

Por princípio, deve ser observada a homologação de construção.

**APPLICATIONS**

For timber substructures with captive

sealing washer, including caps

Technical information:

Recommended screw length = trapeze profile height/sandwich thickness + 20 mm

The building authority approval should always be noted.

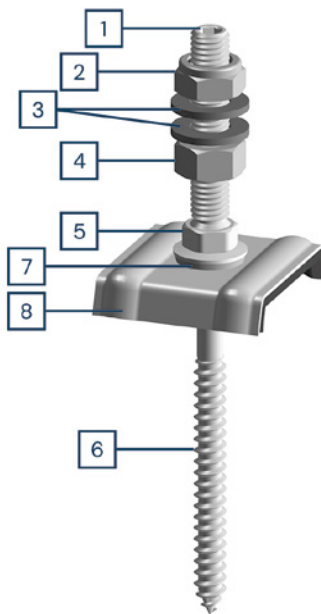


**Artigo 9182 A2 tipo A DS**  
**Fxçã sistemas solares c/bico e anilha vedante 19mm**

Item 9182 A2 type A DS

Solar fastener with point and sealing washer 19 mm

d	l	lg	lm	ll	de fixação Clamp.area	Tamanho Drive size	Número de artigo Item Number	
8,4	136	80	50	70	0-40	SW 5	9182284 80/50	10
	156	100	50	70	20-60	SW 5	9182284 100/50	10
	156	80	70	70	0-40	SW 5	9182284 80/70	10
	176	100	70	70	20-60	SW 5	9182284 100/70	10
	186	130	50	70	55-90	SW 5	9182284 130/50	10
	206	130	70	70	55-90	SW 5	9182284 130/70	10
	206	150	50	70	75-110	SW 5	9182284 150/50	10
	226	150	70	70	75-110	SW 5	9182284 150/70	10
	236	180	50	70	105-140	SW 5	9182284 180/50	10
	256	180	70	70	105-140	SW 5	9182284 180/70	10
256	200	50	70	125-160	SW 5	9182284 200/50	10	
276	200	70	70	125-160	SW 5	9182284 200/70	10	

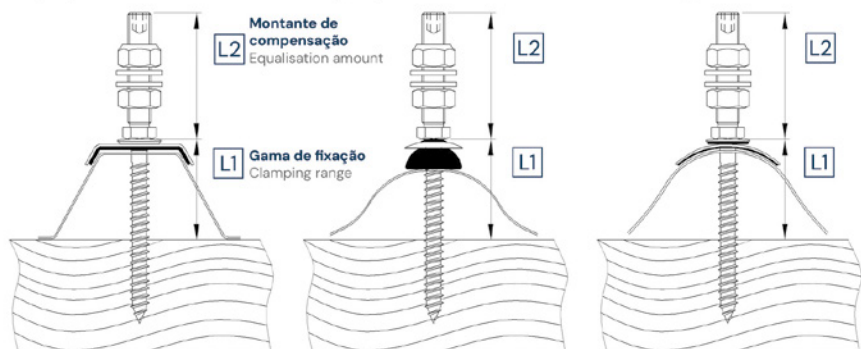


- 1** Chave hexagonal SW5  
Hexagonal socket SW5
- 2** Porca de bloqueio DIN 985 M 10 - A2  
Locking nut DIN 985 M 10 - A2
- 3** Anilhas DIN 125 A2  
Washers DIN 125 A2
- 4** Porca sextavada DIN 934 M 10 A2-70  
Hexagonal nuts DIN 934 M 10 A2-70
- 5** Largura dos apartamentos SW13  
Width across flat SW13
- 6** Fixador solar S+P, Fio de madeira  
S+P solar fastener, wood thread
- 7** Disco de vedação DS Ø 19 mm  
Sealing washer DS Ø 19 mm
- 8** Tampa esférica  
Cap

**Perfil trapezoidal e elemento sanduíche**  
Trapeze profile and sandwich element

**Perfil ondulado e elemento sanduíche**  
Corrugated profile and sandwich element

**Fibrocimento ondulado**  
Corrugated fibre cement



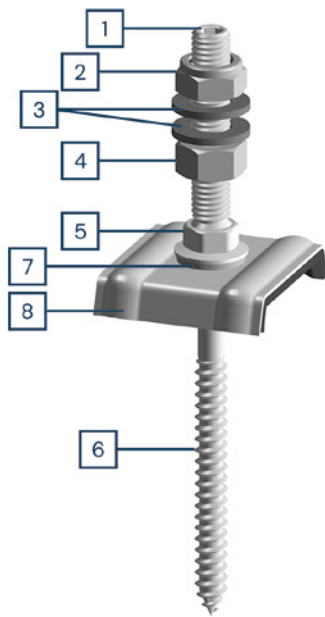
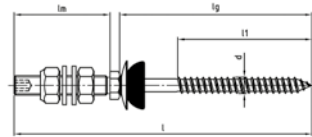
# Artigo 9182 A2 tipo A SFC

## Fixação para sistemas solares com bico e vedação

Art. 9182  
A2

Item 9182 A2 type A FCS  
Solar fastener with point and umbrella washer

d	l	lg	lm	ll	de fixação Clamp.area	Tamanho Drive size	Número de artigo Item Number	
8,4	136	80	50	70	0-35	SW 5	91822084 80/50	10
	156	100	50	70	20-55	SW 5	91822084 100/50	10
	156	80	70	70	0-35	SW 5	91822084 80/70	10
	176	100	70	70	20-55	SW 5	91822084 100/70	10
	186	130	50	70	45-85	SW 5	91822084 130/50	10
	206	130	70	70	45-85	SW 5	91822084 130/70	10
	206	150	50	70	70-105	SW 5	91822084 150/50	10
	226	150	70	70	70-105	SW 5	91822084 150/70	10
	236	180	50	70	100-135	SW 5	91822084 180/50	10
	256	180	70	70	100-135	SW 5	91822084 180/70	10
	256	200	50	70	120-155	SW 5	91822084 200/50	10
	276	200	70	70	120-155	SW 5	91822084 200/70	10



- 1** Chave hexagonal SW5  
Hexagonal socket SW5
- 2** Porca de bloqueio DIN 985 M 10 - A2  
Locking nut DIN 985 M 10 - A2
- 3** Anilhas DIN 125 A2  
Washers DIN 125 A2
- 4** Porca sextavada DIN 934 M 10 A2-70  
Hexagonal nuts DIN 934 M 10 A2-70
- 5** Largura dos apartamentos SW13  
Width across flat SW13
- 6** Fixador solar S+P, Fio de madeira  
S+P solar fastener, wood thread
- 7** Disco de vedação DS Ø 19 mm  
Sealing washer DS Ø 19 mm
- 8** Tampa esférica  
Cap

### UTILIZAÇÕES

Para subestruturas de madeira com anilha vedante impermeável para placas de fibrocimento onduladas. Para fixação de instalações fotovoltaicas e solares.

### APPLICATIONS

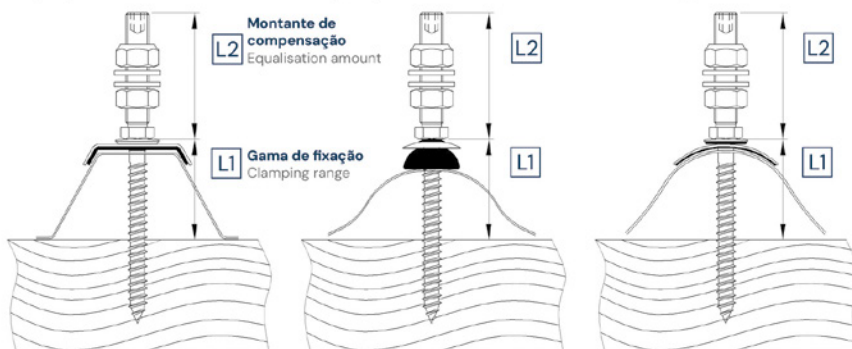
For timber substructures with captive sealing washer for corrugated fibre cement slabs. For mounting of photovoltaic and solar thermal systems.



**Perfil trapezoidal e elemento sanduiche**  
Trapeze profile and sandwich element

**Perfil ondulado e elemento sanduiche**  
Corrugated profile and sandwich element


**Fibrocimento ondulado**  
Corrugated fibre cement

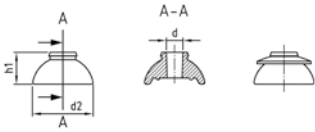


**Art. 9184  
A2**

**Artigo 9184 A2 + EPDM 8,4X25  
Vedações**

*Item 9184 A2 + EPDM 8,4X25  
Umbrella washers with black EPDM*

d	d2	h1	Número de artigo Item Number	
6,8	25	13	918428	100



**CARACTERÍSTICAS**  
- EPDM com disco de aço inoxidável

**FEATURES**  
- EPDM with stainless steel washer

**Art. 9031 A2**  
**Gancho de tejadilho de ardósia Vario, regulável em 1 sentido**

**Art. 9031**  
**A2**

Item 9031 A2

Vario slate roof hooks, 1 time adjustable

d	l	d2	b	s1	s2	xyz	Número de artigo Item Number	
9	260	16,5	30	5	5	ca. 70 - 90	90312260 30 60/5	30



**UTILIZAÇÕES**

O gancho de telhado de ardósia Vario é aparafusado através do revestimento de madeira nas vigas com 3 parafusos de construção de madeira Seko. Após a instalação, é importante vedar cuidadosamente o telhado, de acordo com as normas da indústria de telhados.

**APPLICATIONS**

The Vario slate roof hook fixed with 3 countersunk timber construction screws on the planking and rafter. An accurate seal according to the roofing must be restored.

**CARACTERÍSTICAS**

- Regulação de 1 via

**FEATURES**

- 1 time adjustable


**Art. 9033  
A2**

**Artigo 9033 A2**  
**Gancho fixo para telhado solar, haste 5 mm, 150X50X5/5**

*Item 9033 A2*

*Fix-Solar hooks sandblasted bow 5 mm, 150X50X5/5*




l	d	de base Base plate	b1	b2	h	s	Número de artigo Item Number	
160	9	150X50X5	30	150	127	5	90332150 50	30

**Artigo 9033 A2**  
**Gancho fixo para telhado solar, haste 8 mm, 180X70X6/8**

**Art. 9033**  
**A2**

*Item 9033 A2*  
*Fix solar hooks, bow 8 mm, 180X70X6*

<b>l</b>	<b>d</b>	<b>de base</b> <i>Base plate</i>	<b>b1</b>	<b>b2</b>	<b>h</b>	<b>s</b>	<b>Número de artigo</b> <i>Item Number</i>	
190	9	180X70X6	35	180	130,5	8	90332180 70	20



## Art. 9034 A2



## Artigo 9034 A2 Gancho solar variável, 3 regulações, haste 5 mm, 140X56X5/5

Item 9034 A2

Vario solar hooks 3 times adjustable sandblasted, bow 5 mm, 140X56X5/5

l	d	de base Base plate	b1	b2	h	s1	s2	Número de artigo Item Number	
176	9	140X56X5/5	30	140	145	5	5	903420140 56	30

### UTILIZAÇÕES

- Para a montagem de subestruturas no ramo solar com cargas elevadas associadas a neve e vento.
- Utilização no exterior com influências ambientais sem teores de cloretos e ácido sulfúrico dignos de nota.

### APPLICATIONS

- In the solar industry, for fitting sub-structures with extreme snow and wind loading.
- Can be used outdoors and subjected to environmental influences without significant levels of chlorides or sulphur dioxides.

### CARACTERÍSTICAS

- com tratamento por jatos
- incl. parafusos + porcas

### FEATURES


- blasted
- incl. screws + nuts

## Artigo 9034 A2 Gancho solar variável, 3 regulações, haste 6 mm, 140X56X5/6

Art. 9034  
A2

Item 9034 A2

Vario solar hooks 3 times adjustable sandblasted, bow 6 mm, 140X56X5/6

l	d	de base Base plate	b1	b2	h	s1	s2	Número de artigo Item Number	
171	9	140X56X5/6	30	140	145	5	6	90342140 56	30



### UTILIZAÇÕES

- Para a montagem de subestruturas no ramo solar com cargas elevadas associadas a neve e vento.
- Utilização no exterior com influências ambientais sem teores de cloretos e ácido sulfúrico dignos de nota.

### APPLICATIONS

- In the solar industry, for fitting sub-structures with extreme snow and wind loading.
- Can be used outdoors and subjected to environmental influences without significant levels of chlorides or sulphur dioxides.

### CARACTERÍSTICAS

- com tratamento por jatos
- incl. parafusos + porcas

### FEATURES

- blasted
- incl. screws + nuts

## Art. 9034 A2



## Artigo 9034 A2 Gancho solar variável, 1 regulação, haste 8 mm, 180X70X6/8

Item 9034 A2

Vario solar hooks 1 time adjustable sandblasted, bow 8 mm, 180X70X6/8

l	d	de base Base plate	b1	b2	h	s1	s2	Número de artigo Item Number	
190	9	180X70X6/8	35	180	150,5	8	8	90342180 70	20

### UTILIZAÇÕES

- Para a montagem de subestruturas no ramo solar com cargas elevadas associadas a neve e vento.
- Utilização no exterior com influências ambientais sem teores de cloretos e ácido sulfúrico dignos de nota.

### APPLICATIONS

- For the assembly of substructures in the solar industry at the highest snow, and wind loads.
- Outdoor use due to environmental factors without significant levels of chlorides and sulfuric acid.

### CARACTERÍSTICAS

- com tratamento por jatos
- incl. parafusos + porcas

### FEATURES

- blasted
- incl. screws + nuts

## Artigo 9032 A2 Grampo de aperto de chapas variável

Item 9032 A2

Universal brackets for metal sheet roofs

Art. 9032  
A2

Ângulo L a L-Angle a	Ângulo L b L-Angle b	c	t	d	Número de artigo Item Number	
56	65	30	5	7	9032201	50



### UTILIZAÇÕES

- Para chapas trapezoidais de diferentes tipos com ou sem camada de isolamento
- Ideal em combinação com o parafuso de chapa fina

### APPLICATIONS

- For various trapezium plates with or without between insulation
- Perfect fastening together with the thin sheet screw

### CARACTERÍSTICAS

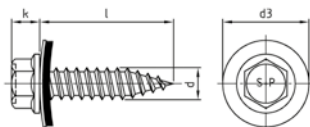
- Variável para todos os tamanhos de chapas trapezoidais
- Fixação com faixas autocolantes
- Ajustável em altura

### FEATURES

- Variable for all sizes of trapezium plates
- Fixing through self-adhesive strip
- Height-adjustable



## Art. 9505 BI-Metall A2



### UTILIZAÇÕES

Para painéis perfilados de paredes finas, juntas de topo, em painéis perfilados de aço e alumínio e para a colocação de calotas em perfis trapezoidais.

- O aparafusamento ideal de suportes de chapas trapezoidais (9032) em painéis de chapas trapezoidais.
- Bimetal – Um processo de soldadura especial une o parafuso de aço inoxidável à ponta de aço carbono temperada.
- Rotação de processamento 1600 a 1800 rpm.
- Binário de aperto recomendado para aço: aprox. 3 Nm, 1 Nm para material com espessura inferior a 0,8 mm.
- Binário de aperto recomendado para alumínio: aprox. 1 Nm, 0,5 Nm para material com espessura inferior a 0,8 mm.

### APPLICATIONS

- For thin-profiled panels, butt joints in steel and aluminum profiled sheets and the attachment of the domes on trapezoidal profiles.
- The optimum screw connection of trapezium holders (9032) on trapezium tin boards.
- BI-Metall – a special welding process joins the stainless steel screw to the hardened carbon steel tip
- Recommended tightening torque for steel: about 3Nm, 1 Nm to 0.8 mm thickness.
- Recommended tightening torque for aluminum: about 1Nm, 0.8 mm thickness under 0.5 Nm.

### CARACTERÍSTICAS

- Força de suporte 50% superior
- Poupança de tempo 50% superior
- Necessidade de menos pontos de fixação
- Aparas de perfuração quase inexistentes
- Aprovação Técnica Europeia ETA 23/1031

### FEATURES

- 50% higher hold strengt
- 50% of saving of time
- less connection points urgently
- nearly no drilling filings
- European Technical Assessment ETA 23/1031

## Artigo 9505 A2 Parafusos de chapa fina BI-Metal com anilha de vedação

Item 9505 A2

BI-Metal thin sheet screw with washer

d	l	k	d3	de aperto clamp.stre	dc	max.perfur max. Drill	Tamanho Drive size	Número de artigo Item Number	
4,5	25	4,6	14	1-10	11	≤ 2,00	SW 8	95052B245 25	100
	38	4,6	14	1-10	11	≤ 2,00	SW 8	95052B245 38	100
6	25	5,25	16	1-10	11	≤ 2,00	SW 8	95052B260 25	100
	38	5,25	16	1-10	11	≤ 2,00	SW 8	95052B260 38	100



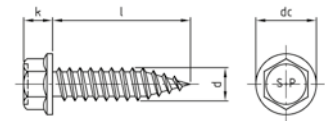
ETA - 23/1031

**Art. 9505 A2**  
**Parafusos BI-Metal para chapa fina sem anilha de vedação**

Item 9505 A2  
 BI-Metal thin sheet screw without washer

d	l	k	de aperto clamp.stre	dc	max.perfur max. Drill	Tamanho Drive size	Número de artigo Item Number	
4,5	25	4,6	1-10	11	≤ 2,00	SW 8	95052B2045 25	100
	38	4,6	1-10	11	≤ 2,00	SW 8	95052B2045 38	100
6	25	5,25	1-10	11	≤ 2,00	SW 8	95052B2060 25	100
	38	5,25	1-10	11	≤ 2,00	SW 8	95052B2060 38	100

**Art. 9505**  
**BI-Metall A2**



**UTILIZAÇÕES**

Para painéis perfilados de paredes finas, juntas de topo, em painéis perfilados de aço e alumínio e para a colocação de calotas em perfis trapezoidais.

- O aparafusamento ideal de suportes de chapas trapezoidais (9032) em painéis de chapas trapezoidais.
- Bimetal – Um processo de soldadura especial une o parafuso de aço inoxidável à ponta de aço carbono temperada.
- Rotação de processamento 1600 a 1800 rpm.
- Binário de aperto recomendado para aço: aprox. 3 Nm, 1 Nm para material com espessura inferior a 0,8 mm.
- Binário de aperto recomendado para alumínio: aprox. 1 Nm, 0,5 Nm para material com espessura inferior a 0,8 mm.

**APPLICATIONS**

- For thin-profiled panels, butt joints in steel and aluminum profiled sheets and the attachment of the domes on trapezoidal profiles.
- The optimum screw connection of trapezium holders (9032) on trapezium tin boards.
- BI-Metall - a special welding process joins the stainless steel screw to the hardened carbon steel tip
- Recommended tightening torque for steel: about 3Nm, 1 Nm to 0.8 mm thickness.
- Recommended tightening torque for aluminum: about 1Nm, 0.8 mm thickness under 0.5 Nm.

**CARACTERÍSTICAS**

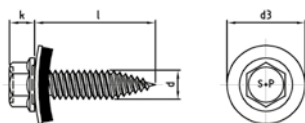
- Força de suporte 50% superior
- Poupança de tempo 50% superior
- Necessidade de menos pontos de fixação
- Aparas de perfuração quase inexistentes
- Aprovação Técnica Europeia ETA 23/1031

**FEATURES**

- 50% higher hold strengt
- 50% of saving of time
- less connection points urgently
- nearly no drilling filings
- European Technical Assessment ETA 23/1031



## Art. 9506 BI-Metall A2



### UTILIZAÇÕES

- Para chapas perfiladas de paredes finas, juntas de topo, para chapas perfiladas de aço e alumínio e para a fixação de tampas esféricas em perfis trapezoidais.
- A ligação roscada ideal para suportes de chapa trapezoidal (9032) em painéis de chapa trapezoidal.
- BI-Metal – um processo de soldadura especial liga o parafuso de aço inoxidável com a ponta de aço-carbono endurecido.
- Binário de aperto recomendado para aço: aprox. 3Nm, abaixo de 0,8 mm de espessura do material 1Nm.
- Binário de aperto recomendado para alumínio: aprox. 1Nm, abaixo de 0,8 mm de espessura do material 0,5 Nm.

### APPLICATIONS

- For thin-profiled panels, butt joints in steel and aluminum profiled sheets and the attachment of the domes on trapezoidal profiles.
- The optimum screw connection of trapezium holders (9032) on trapezium tin boards.
- BI-Metall – a special welding process joins the stainless steel screw to the hardened carbon steel tip
- Recommended tightening torque for steel: about 3Nm, 1 Nm to 0.8 mm thickness.
- Recommended tightening torque for aluminum: about 1Nm, 0.8 mm thickness under 0.5 Nm.

### CARACTERÍSTICAS

- Força de retenção 50% superior
- 50% de poupança de tempo
- menos pontos de fixação necessários
- Quase sem aparas de perfuração
- rosca fina
- Aprovação técnica europeia ETA 23/1031

### FEATURES

- 50% higher hold strengt
- 50% of saving of time
- less connection points urgently
- nearly no drilling filings
- fine thread
- European Technical Assessment ETA 23/1031



## Art. 9506 A2 – Parafusos para chapa fina BI-Metal com anilha de vedação e rosca de passo fino

Item 9506 A2

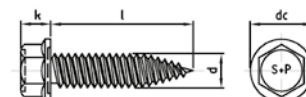
Bi-Metal thin sheet screws with washer and fine thread

d	l	k	d3	de aperto clamp.stre	dc	max.perfur max. Drill	Tamanho Drive size	Número de artigo Item Number	
4,5	25	5,1	14	1-10	11	≤ 2,00	SW 8	95062B245 25	100
	38	5,1	14	1-10	11	≤ 2,00	SW 8	95062B245 38	100
6	25	5,25	16	1-10	11	≤ 2,00	SW 8	95062B260 25	100
	38	5,25	16	1-10	11	≤ 2,00	SW 8	95062B260 38	100

## Art. 9506 A2 Parafusos BI-Metal para chapas finas com rosca fina

Item 9506 A2  
BI-Metal thin sheet screw with fine thread

d	l	k	de aperto clamp.stre	dc	max.perfur max. Drill	Tamanho Drive size	Número de artigo Item Number	
4,5	25	5,1	1-10	11	≤ 2,00	SW 8	95062B2045 25	100
	38	5,1	1-10	11	≤ 2,00	SW 8	95062B2045 38	100
6	25	5,25	1-10	11	≤ 2,00	SW 8	95062B2060 25	100
	38	5,25	1-10	11	≤ 2,00	SW 8	95062B2060 38	100



### UTILIZAÇÕES

- Para chapas perfiladas de paredes finas, juntas de topo, para chapas perfiladas de aço e alumínio e para a fixação de tampas esféricas em perfis trapezoidais.
- A ligação roscada ideal para suportes de chapa trapezoidal (9032) em painéis de chapa trapezoidal.
- BI-Metal - um processo de soldadura especial liga o parafuso de aço inoxidável com a ponta de aço-carbono endurecido.
- Binário de aperto recomendado para aço: aprox. 3Nm, abaixo de 0,8 mm de espessura do material 1Nm.
- Binário de aperto recomendado para alumínio: aprox. 1Nm, abaixo de 0,8 mm de espessura do material 0,5 Nm.

### APPLICATIONS

- For thin-profiled panels, butt joints in steel and aluminum profiled sheets and the attachment of the domes on trapezoidal profiles.
- The optimum screw connection of trapezium holders (9032) on trapezium tin boards.
- BI-Metal - a special welding process joins the stainless steel screw to the hardened carbon steel tip
- Recommended tightening torque for steel: about 3Nm, 1 Nm to 0.8 mm thickness.
- Recommended tightening torque for aluminum: about 1Nm, 0.8 mm thickness under 0.5 Nm.

### CARACTERÍSTICAS

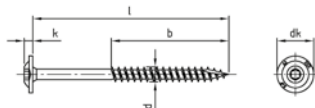
- Força de retenção 50% superior
- 50% de poupança de tempo
- menos pontos de fixação necessários
- Quase sem aparas de perfuração
- rosca fina
- Aprovação técnica europeia ETA 23/1031

### FEATURES

- 50% higher hold strengt
- 50% of saving of time
- less connection points urgently
- nearly no drilling filings
- fine thread
- European Technical Assessment ETA 23/1031



## Art. 9250 A2



### UTILIZAÇÕES

Ideal para aparafusamentos no exterior como p. ex. setor solar, estacionamentos, varandas, pontes, equipamentos lúdicos, casas pré-fabricadas e todos os componentes de apoio. Ideal para aparafusamentos no exterior como p. ex. setor solar, estacionamentos, varandas, pontes, equipamentos lúdicos, casas pré-fabricadas e todos os componentes de apoio.

Tem de ser assegurada uma profundidade de enroscamento mínima de 4 X o diâmetro. Idealmente, deve ser alcançada uma profundidade de enroscamento de 8 X o diâmetro. Não se deve considerar no cálculo mais de 12 X o diâmetro

### APPLICATIONS

Ideal for Outdoor screw connections such as solar equipment, car ports, balconies, steps, playground equipment, prefabricated houses and all supporting components

A minimum screw-in depth of 4x the diameter must be ensured. A screw-in depth of 8x the diameter should ideally be achieved. More than 12x the diameter must not be included in calculations.

### CARACTERÍSTICAS

- Rosca parcial
- Parafusos de cabeça tipo prato para construções em madeira
- Ponta de corte
- Revestimento especial antifricção

### FEATURES

- Pan washer head timber screws
- cutting point
- Anti-Friction-coating
- TX drive



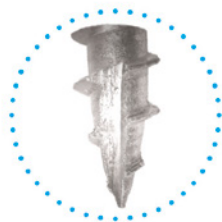
## Artigo 9250 A2 TX Prf. p/madeira cab.prata ponta de corte, rosca parcial

Item 9250 A2 TX

Pan washer head timber screws with cutting point

d	4	4,5	5	6	8
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
20	9250240 20	9250245 20			
25	9250240 25/18	9250245 25/18	9250250 25/18		
30	9250240 30/18	9250245 30/18	9250250 30/20	9250260 30/20	9250280 30
35	9250240 35/24	9250245 35/24	9250250 35/24	9250260 35/24	
40	9250240 40/24	9250245 40/24	9250250 40/24	9250260 40/24	9250280 40
45	9250240 45/30	9250245 45/30	9250250 45/30	9250260 45/30	
50	9250240 50/30	9250245 50/30	9250250 50/30	9250260 50/30	9250280 50
55	9250240 55/36	9250245 55/36	9250250 55/36	9250260 55/36	
60	9250240 60/36	9250245 60/36	9250250 60/36	9250260 60/36	9250280 60/50
65	9250240 65/36	9250245 65/36	9250250 65/36	9250260 65/36	
70	9250240 70/42	9250245 70/42	9250250 70/42	9250260 70/42	9250280 70/50
80	9250240 80/48	9250245 80/48	9250250 80/48	9250260 80/48	9250280 80/72
90		9250245 90/54	9250250 90/54	9250260 90/54	9250280 90/80
100		9250245 100/60	9250250 100/60	9250260 100/70	9250280 100/80
110				9250260 110/70	9250280 110/80
120			9250250 120/70	9250260 120/70	9250280 120/80
130				9250260 130/70	9250280 130/80
140				9250260 140/70	9250280 140/80
150				9250260 150/70	9250280 150/80
160				9250260 160/70	9250280 160/80
170				9250260 170/70	9250280 170/80
180				9250260 180/70	9250280 180/80
190				9250260 190/70	9250280 190/80
200				9250260 200/70	9250280 200/80
220				9250260 220/70	9250280 220/80
240				9250260 240/70	9250280 240/80
250					9250280 250/80
260				9250260 260/70	9250280 260/80
280				9250260 280/70	9250280 280/80
300				9250260 300/70	9250280 300/80
320					9250280 320/80
340					9250280 340/80
350					9250280 350/80
360					9250280 360/80
380					9250280 380/80
400					9250280 400/80

	200	200	200 ≥60: box=100	100 ≥200: box=50	100 ≥120: box=50
dk	12	13	14	15	20
k	3	3.2	3.5	3.8	4.6
Tamanho Drive size	TX20	TX20	TX25	TX25	TX40



**Artigo 9250 A2 TX**  
**Prf. p/madeira cab.prata ponta de corte, rosca parcial**

**Art. 9250**  
**A2**

Item 9250 A2 TX

Pan washer head timber screws with cutting point

10

Núm.-art./Item no.

92502100 60/50

92502100 70/55

92502100 80/55

92502100 90/55

92502100 100/55

92502100 110/80

92502100 120/80

92502100 130/80

92502100 140/80

92502100 150/80

92502100 160/80

92502100 170/80

92502100 180/105

92502100 190/105

92502100 200/105

92502100 220/105

92502100 240/105

92502100 250/105

92502100 260/105

92502100 280/105

92502100 300/105

92502100 320/105

92502100 340/105

92502100 350/105

92502100 360/105

92502100 380/105

92502100 400/105

100

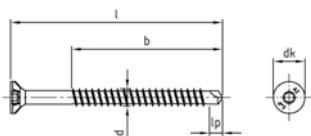
≥120: box = 50

25

5

TX40

## Art. 9040 A2



### UTILIZAÇÕES

Ideal para aparafusamentos no exterior como p. ex. revestimentos, cercas, varandas, pontes, equipamentos lúdicos, fachadas e decks. O parafuso extra robusto tanto na força de extração como na resistência.

Também perfura chapas de metais macios de paredes finas, p. ex., alumínio até uma espessura de 2 mm. Tem de ser assegurada uma profundidade de enrocamento mínima de 4 X o diâmetro. Idealmente, deve ser alcançada uma profundidade de enrocamento de 8 X o diâmetro. Não se deve considerar no cálculo mais de 12 X o diâmetro.

### APPLICATIONS

Ideal for outdoor screw connections such as those in boarding, fences, balconies, steps, playground equipment, facades and terraces.

Can also be drilled through thin-walled soft metal sheets, e.g. aluminium up to a thickness of 2 mm.

A minimum screw-in depth of 4x the diameter must be ensured. A screw-in depth of 8x the diameter should ideally be achieved. More than 12x the diameter must not be included in calculations.

### CARACTERÍSTICAS

#### SUPER-DRILL

- Cabeça reforçada
- Corpo estabilizado
- Rosca saliente
- Revestimento especial antifricção
- Nervuras de fresagem por baixo da cabeça
- Acionamento com dentado interior arredondado TX

#### FEATURES

##### SUPER-DRILL

- Reinforced head
- Stabilised shoulder
- Distinct thread
- Anti-Friction-coating
- ribs under the head
- TX drive



## Artigo 9040 A2 TX Parafusos de cabeça escareada com ponta de broca

Item 9040 A2 TX

Super-Drill CSK head timber screws with drilling point

d	l	b	dk	k	lp	Tamanho Drive size	Número de artigo Item Number	
6	60	35	12	3,6	4,9	TX25	9040260 60	200
	70	47	12	3,6	4,9	TX25	9040260 70	200
	80	57	12	3,6	4,9	TX25	9040260 80	200
	90	57	12	3,6	4,9	TX25	9040260 90	200
	100	66	12	3,6	4,9	TX25	9040260 100	100
	120	66	12	3,6	4,9	TX25	9040260 120	100
	140	66	12	3,6	4,9	TX25	9040260 140	100


## Artigo 9047 A2 TX Prf. p/aglom. cab. escareada e reforçada, rosca parcial

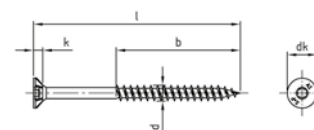
Art. 9047  
A2

Item 9047 A2 TX

Double countersunk head timber screws with partial thread

d	6	8	10
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
30	9047260 30/20		
35	9047260 35/24		
40	9047260 40/24		
45	9047260 45/30		
50	9047260 50/30		
55	9047260 55/36		
60	9047260 60/36		90472100 60/50
65	9047260 65/42		
70	9047260 70/42	9047280 70/50	90472100 70/55
80	9047260 80/48	9047280 80/50	90472100 80/55
90	9047260 90/54	9047280 90/60	90472100 90/55
100	9047260 100/70	9047280 100/80	90472100 100/55
110	9047260 110/70	9047280 110/80	90472100 110/80
120	9047260 120/70	9047280 120/80	90472100 120/80
130	9047260 130/70	9047280 130/80	90472100 130/80
140	9047260 140/70	9047280 140/80	90472100 140/80
150	9047260 150/70	9047280 150/80	90472100 150/80
160	9047260 160/70	9047280 160/80	90472100 160/80
170	9047260 170/70	9047280 170/80	90472100 170/80
180	9047260 180/70	9047280 180/80	90472100 180/105
190	9047260 190/70	9047280 190/80	90472100 190/105
200	9047260 200/70	9047280 200/80	90472100 200/105
220	9047260 220/70	9047280 220/80	90472100 220/105
225		9047280 225/80	
240	9047260 240/70	9047280 240/80	90472100 240/105
250		9047280 250/80	90472100 250/105
260	9047260 260/70	9047280 260/80	90472100 260/105
280	9047260 280/70	9047280 280/80	90472100 280/105
300	9047260 300/70	9047280 300/80	90472100 300/105
320		9047280 320/80	90472100 320/105
325		9047280 325/80	
340		9047280 340/80	90472100 340/105
350		9047280 350/80	90472100 350/105
360		9047280 360/80	90472100 360/105
375		9047280 375/80	90472100 375/105
380		9047280 380/80	90472100 380/105
400		9047280 400/80	90472100 400/105

	100	100	100 ≥340: box=50
dk	12	15	19
k	3.6	4.1	4.7
Tamanho Drive size	TX25	TX40	TX40



### UTILIZAÇÕES

Ideal para o aparafusamento no setor da madeira. A geometria perfeita da rosca assegura a melhor preensão nos mais diversos materiais à base de madeira. Graças ao encaixe TX é alcançada uma transmissão ideal da força.

### APPLICATIONS

Ideal for screwing in wood. The optimal thread geometry ensures the best grip in a variety of wood materials. By recording TX optimum power transmission is achieved.

### CARACTERÍSTICAS

- Rosca parcial
- Cabeça escareada 90°
- Reforço por baixo da cabeça
- Dentado interior arredondado TX
- Ponta padrão
- A partir de diâmetro 10, 8 e a partir de 6 x 140 mm nervuras de fresagem por baixo da cabeça

### FEATURES

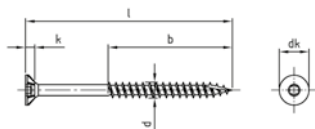
- partial thread
- countersunk 90°
- double countersunk head
- TX drive
- standard tip
- at Diameter 10, 8 and at 6 x 140mm ribs under the head



**Art. 9147  
A2**

**Artigo 9147 A2 TX  
Prf.escar.p/aglom.nervuras fresagem,ponta CUT**

Item 9147 A2 TX  
Double CSK head timber screws with ribs, cutting point



**UTILIZAÇÕES**

Ideal para o aparafusamento no setor da madeira. A geometria perfeita da rosca assegura a melhor preensão nos mais diversos materiais à base de madeira. Graças ao encaixe TX é alcançada uma transmissão ideal da força.

**APPLICATIONS**

Ideal for screwing in wood. The optimal thread geometry ensures the best grip in a variety of wood materials. By recording TX optimum power transmission is achieved.

**CARACTERÍSTICAS**

- Cabeça escareada 90°
- Reforço por baixo da cabeça
- Dentado interior arredondado TX
- Ponta de corte
- Nervuras de fresagem por baixo da cabeça

**FEATURES**

- countersunk 90°
- double countersunk head
- TX drive
- cutting point
- ribs under the head




d	6	8	10
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
20	9147260 20		
25	9147260 25		
30	9147260 30/20	9147280 30	
35	9147260 35/24		
40	9147260 40/24	9147280 40	
45	9147260 45/30		
50	9147260 50/30	9147280 50	
55	9147260 55/36		
60	9147260 60/36	9147280 60	91472100 60/50
65	9147260 65/36		
70	9147260 70/42	9147280 70/50	91472100 70/55
80	9147260 80/48	9147280 80/50	91472100 80/55
90	9147260 90/54	9147280 90/60	91472100 90/55
100	9147260 100/70	9147280 100/80	91472100 100/55
110	9147260 110/70	9147280 110/80	91472100 110/80
120	9147260 120/70	9147280 120/80	91472100 120/80
130	9147260 130/70	9147280 130/80	91472100 130/80
140	9147260 140/70	9147280 140/80	91472100 140/80
150	9147260 150/70	9147280 150/80	91472100 150/80
160	9147260 160/70	9147280 160/80	91472100 160/80
170	9147260 170/70	9147280 170/80	91472100 170/80
180	9147260 180/70	9147280 180/80	91472100 180/105
190	9147260 190/70	9147280 190/80	91472100 190/105
200	9147260 200/70	9147280 200/80	91472100 200/105
220	9147260 220/70	9147280 220/80	91472100 220/105
240	9147260 240/70	9147280 240/80	91472100 240/105
250		9147280 250/80	91472100 250/105
260	9147260 260/70	9147280 260/80	91472100 260/105
280	9147260 280/70	9147280 280/80	91472100 280/105
300	9147260 300/70	9147280 300/80	91472100 300/105
320		9147280 320/80	91472100 320/105
340		9147280 340/80	91472100 340/105
350		9147280 350/80	91472100 350/105
360		9147280 360/80	91472100 360/105
380		9147280 380/80	91472100 380/105
400		9147280 400/80	91472100 400/105

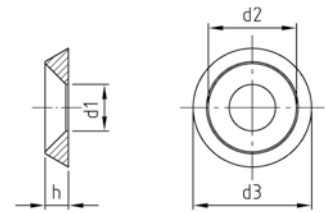
	100	100	100 ≥340: box = 50
dk	12	15	19
k	3.6	4.1	4.7
Tamanho Drive size	TX25	TX40	TX40

**NF E 27-619 1.4305**  
**Anilhas côncavas torneadas**

NF E 27-619 1.4305  
Turned cup washers

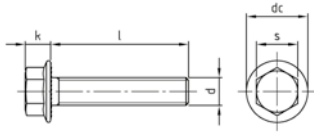
**NF E 27-619**  
**A1**

d1	d2	d3	h	Número de artigo Item Number	
7	12	16	3,5	27619206	100
9	16	22	4,5	27619208	100
11	20	28	5,5	276192010	50



## DIN 6921 A2

Alt. Norma  
em alternativa DIN 1665



### UTILIZAÇÕES

Fixação de placas de adaptação e outros componentes com necessidade de superfícies de contacto grandes.

Utilização em espaços húmidos e em aplicações no exterior, incluindo atmosferas industriais e áreas próximas da costa.

### APPLICATIONS

Securing components which require a large bearing surface

Used in damp rooms and in outdoor applications (A2), including industrial atmospheres and near coasts (A4).

## DIN 6921 A2

### Parafusos sextavados flangeados serrilhados, rosca total

DIN 6921 A2

Hexagon head screws fullthread with locking teeth

d	M 5	M 6	M 8	M 10
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
10	6921205 10	6921206 10		
12	6921205 12	6921206 12	6921208 12	
16	6921205 16	6921206 16	6921208 16	69212010 16
20	6921205 20	6921206 20	6921208 20	69212010 20
25	6921205 25	6921206 25	6921208 25	69212010 25
30	6921205 30	6921206 30	6921208 30	69212010 30
35	6921205 35	6921206 35	6921208 35	69212010 35
40	6921205 40	6921206 40	6921208 40	69212010 40
45	6921205 45	6921206 45	6921208 45	69212010 45
50	6921205 50	6921206 50	6921208 50	69212010 50
55		6921206 55	6921208 55	69212010 55
60		6921206 60	6921208 60	69212010 60


	200	200	200	100
dc	11.8	14.2	18	22.3
k	5.4	6.6	8.1	9.2
Tamanho Drive size	SW 8	SW 10	SW 13	SW 15

## DIN 6921 A2 Parafusos sextavados com flange e rosca total

DIN 6921 A2

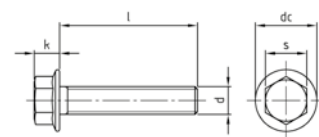
Hexagon head screws with flange and fullthread

d	M 5	M 6	M 8	M 10
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
10	692125 10	692126 10		
12	692125 12	692126 12	692128 12	
16	692125 16	692126 16	692128 16	6921210 16
20	692125 20	692126 20	692128 20	6921210 20
25	692125 25	692126 25	692128 25	6921210 25
30	692125 30	692126 30	692128 30	6921210 30
35	692125 35	692126 35	692128 35	6921210 35
40	692125 40	692126 40	692128 40	6921210 40
45	692125 45	692126 45	692128 45	6921210 45
50	692125 50	692126 50	692128 50	6921210 50
55		692126 55	692128 55	6921210 55
60		692126 60	692128 60	6921210 60

	200	200	200	100
dc	11.8	14.2	18	22.3
k	5.4	6.6	8.1	9.2
Tamanho Drive size	SW 8	SW 10	SW 13	SW 15

DIN 6921  
A2

Alt. Norma  
em alternativa DIN 1665



### UTILIZAÇÕES

Fixação de placas de adaptação e outros componentes com necessidade de superfícies de contacto grandes.

Utilização em espaços húmidos e em aplicações no exterior, incluindo atmosferas industriais e áreas próximas da costa.

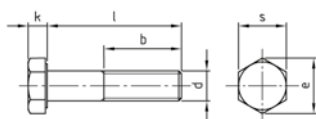
### APPLICATIONS

Securing components which require a large bearing surface

Used in damp rooms and in outdoor applications (A2), including industrial atmospheres and near coasts (A4).

## DIN 931 A2

Alt. Norma  
substituído por ISO 4014



### UTILIZAÇÕES

Ideal para aparafusamentos no setor das máquinas e no setor solar.

### APPLICATIONS

Ideal for screw connections in the machine and solar area.



## DIN 931 A2 Parafusos cab. sextavada com rosca parcial

DIN 931 A2  
Hexagon head bolts


d	M 8	M 10	M 12
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
40	093128 40	0931210 40	0931212 40
50	093128 50	0931210 50	0931212 50
60	093128 60	0931210 60	0931212 60
70	093128 70	0931210 70	0931212 70
80	093128 80	0931210 80	0931212 80
90	093128 90	0931210 90	0931212 90
100	093128 100	0931210 100	0931212 100
110	093128 110	0931210 110	0931212 110
120	093128 120	0931210 120	0931212 120
130	093128 130	0931210 130	0931212 130
140	093128 140	0931210 140	0931212 140
150	093128 150	0931210 150	0931212 150
160	093128 160	0931210 160	0931212 160

	100 ≥70: box = 50 ≥160: box = 25	100 ≥50: box = 50 ≥160: box = 25 ≥260: box = 10	50 ≥75: box = 25 ≥160: box = 10
e	14,38	18,9	21,1
k	5,3	6,4	7,5
Tamanho Drive size	SW 13	SW 17	SW 19

## DIN 933 A2 Parafusos cab. sextavada com rosca total

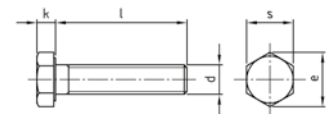
DIN 933 A2  
Hexagon head screws

d	M 8	M 10	M 12
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
16	093328 16	0933210 16	0933212 16
20	093328 20	0933210 20	0933212 20
25	093328 25	0933210 25	0933212 25
30	093328 30	0933210 30	0933212 30
35	093328 35	0933210 35	0933212 35
40	093328 40	0933210 40	0933212 40
45	093328 45	0933210 45	0933212 45
50	093328 50	0933210 50	0933212 50
60	093328 60	0933210 60	0933212 60
70	093328 70	0933210 70	0933212 70
80	093328 80	0933210 80	0933212 80
90	093328 90	0933210 90	0933212 90
100	093328 100	0933210 100	0933212 100
120	093328 120	0933210 120	0933212 120
130	093328 130	0933210 130	0933212 130
135		0933210 135	
140	093328 140	0933210 140	0933212 140
150	093328 150	0933210 150	0933212 150
160	093328 160	0933210 160	0933212 160

	500	100	50
	≥14: box = 200 ≥25: box = 100 ≥70: box = 50 ≥160: box = 25	≥50: box = 50 ≥160: box = 25	≥75: box = 25 ≥160: box = 10
e	14.38	18.9	21.1
k	5.3	6.4	7.5
Tamanho Drive size	SW 13	SW 17	SW 19

DIN 933  
A2

Alt. Norma  
substituído por ISO 4017



### UTILIZAÇÕES

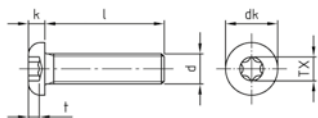
Ideal para aparafusamentos no setor do metal e no setor solar.

### APPLICATIONS

Ideal for screw connections in the machine and Metal construction area.



ISO 7380-1  
A2



UTILIZAÇÕES

Aparafusamentos em chapa em instalações sanitárias e de aquecimento

Utilização em espaços húmidos e em aplicações no exterior sem teores de cloretos e dióxido de enxofre dignos de nota

APPLICATIONS

Sheet metal screw connections in sanitary and heating installation.

Use in damp rooms and outdoor applications without significant levels of chlorides or sulphur dioxides.

CARACTERÍSTICAS

- "O" = capacidade de carga reduzida

FEATURES

- "O" = reduced load capacity



ISO 7380-1 A2 TX

Parafusos cab. redonda hexalobular, rosca total

ISO 7380-1 A2 TX

Button head screws with six lobe drive with fullthread

d	M 6	M 8
l/mm	Núm.-art./Item no.	Núm.-art./Item no.
6	738012T6 6	
8	738012T6 8	738012T8 8
10	738012T6 10	738012T8 10
12	738012T6 12	738012T8 12
14	738012T6 14	738012T8 14
16	738012T6 16	738012T8 16
18	738012T6 18	738012T8 18
20	738012T6 20	738012T8 20
22	738012T6 22	738012T8 22
25	738012T6 25	738012T8 25
30	738012T6 30	738012T8 30
35	738012T6 35	738012T8 35
40	738012T6 40	738012T8 40
45	738012T6 45	738012T8 45
50	738012T6 50	738012T8 50
55	738012T6 55	738012T8 55
60	738012T6 60	738012T8 60
65	738012T6 65	738012T8 65
70	738012T6 70	738012T8 70
75	738012T6 75	738012T8 75
80	738012T6 80	738012T8 80
90	738012T6 90	738012T8 90
100	738012T6 100	738012T8 100
110		738012T8 110
120	738012T6 120	738012T8 120

	500	500
	≥14: box=200 ≥45: box=100	≥10: box=200 ≥50: box=100 ≥100: box=50
dk	10.5	14
k	3.3	4.4
t	2.08	2.6
Tamanho Drive size	TX30	TX40

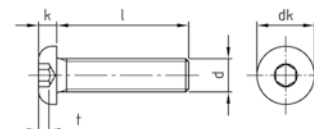
**ISO 7380-1 A2**  
**Parafusos cab.redonda sext. int., rosca total**

*ISO 7380-1 A2*  
*Hexagon socket button head screws with fullthread*

**ISO 7380-1**  
**A2**

d	M 6	M 8
l/mm	Núm.-art./Item no.	Núm.-art./Item no.
6	7380126 6	
8	7380126 8	7380128 8
10	7380126 10	7380128 10
12	7380126 12	7380128 12
14	7380126 14	7380128 14
16	7380126 16	7380128 16
18	7380126 18	7380128 18
20	7380126 20	7380128 20
22	7380126 22	7380128 22
25	7380126 25	7380128 25
30	7380126 30	7380128 30
35	7380126 35	7380128 35
40	7380126 40	7380128 40
45	7380126 45	7380128 45
50	7380126 50	7380128 50
55	7380126 55	7380128 55
60	7380126 60	7380128 60
65	7380126 65	7380128 65
70	7380126 70	7380128 70
75	7380126 75	7380128 75
80	7380126 80	7380128 80
90	7380126 90	7380128 90
100	7380126 100	7380128 100
110		7380128 110
120	7380126 120	7380128 120

	500 ≥14: box=200 ≥45: box=100	500 ≥14: box=200 ≥25: box=100 ≥100: box=50
dk	10.5	14
k	3.3	4.4
t	2.08	2.6
Tamanho Drive size	SW 4	SW 5



**UTILIZAÇÕES**

Aparafusamentos em chapa em instalações sanitárias e de aquecimento

Utilização em espaços húmidos e em aplicações no exterior sem teores de cloretos e dióxido de enxofre dignos de nota

**APPLICATIONS**

Sheet metal screw in the bathroom - and heating

Use in damp rooms and outdoor applications without significant levels of chlorides and Schwefeldioxyden

**CARACTERÍSTICAS**

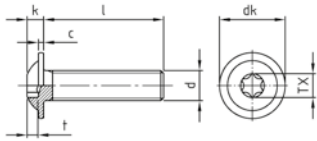
- "O" = capacidade de carga reduzida

**FEATURES**

- "O" = reduced load capacity



ISO 7380-2  
A2



UTILIZAÇÕES

Aparafusamentos em chapa em instalações sanitárias e de aquecimento

Utilização em espaços húmidos e em aplicações no exterior sem teores de cloretos e dióxido de enxofre dignos de nota

APPLICATIONS

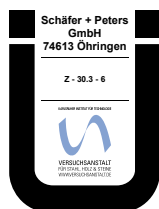
Sheet metal screw connections in sanitary and heating installation. Use in damp rooms and outdoor applications without significant levels of chlorides or sulphur dioxides.

CARACTERÍSTICAS

- "O" = capacidade de carga reduzida

FEATURES

- "O" = reduced load capacity



ISO 7380-2 A2 flange TX  
Paraf. cab. redonda, hexalob., flange e rosca total

ISO 7380-2 A2 with flange TX  
Button head screws TX-drive flange with fullthread

d	M 6	M 8
l/mm	Núm.-art./Item no.	Núm.-art./Item no.
6	738022T6 6	
8	738022T6 8	738022T8 8
10	738022T6 10	738022T8 10
12	738022T6 12	738022T8 12
14	738022T6 14	738022T8 14
16	738022T6 16	738022T8 16
18	738022T6 18	738022T8 18
20	738022T6 20	738022T8 20
22		738022T8 22
25	738022T6 25	738022T8 25
30	738022T6 30	738022T8 30
35	738022T6 35	738022T8 35
40	738022T6 40	738022T8 40
45	738022T6 45	738022T8 45
50	738022T6 50	738022T8 50
60	738022T6 60	738022T8 60
65	738022T6 65	738022T8 65
70	738022T6 70	738022T8 70
75	738022T6 75	738022T8 75
80	738022T6 80	738022T8 80
90	738022T6 90	738022T8 90
100	738022T6 100	738022T8 100
110		738022T8 110
120	738022T6 120	738022T8 120


	500 ≥14: box = 200 ≥45: box = 100	500 ≥10: box = 200 ≥25: box = 100 ≥100: box = 50
c	2	1.2
dk	13.6	17.8
k	3.3	3.3
t	2.08	2.08
Tamanho Drive size	TX30	TX40

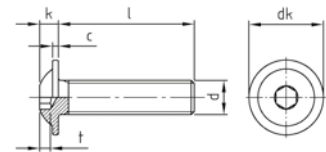
**ISO 7380-2 A2 flange**  
**Paraf. cab. redonda, sext.int, flange e rosca total**

**ISO 7380-2**  
**A2**

*ISO 7380-2 A2 with flange*  
*Hexagon socket button head screw flange with fullthread*

d	M 6	M 8
l/mm	Núm.-art./Item no.	Núm.-art./Item no.
6	7380226 6	
8	7380226 8	7380228 8
10	7380226 10	7380228 10
12	7380226 12	7380228 12
14	7380226 14	7380228 14
16	7380226 16	7380228 16
18	7380226 18	7380228 18
20	7380226 20	7380228 20
22	7380226 22	7380228 22
25	7380226 25	7380228 25
30	7380226 30	7380228 30
35	7380226 35	7380228 35
40	7380226 40	7380228 40
45	7380226 45	7380228 45
50	7380226 50	7380228 50
55	7380226 55	7380228 55
60	7380226 60	7380228 60
65	7380226 65	7380228 65
70	7380226 70	7380228 70
75	7380226 75	7380228 75
80	7380226 80	7380228 80
90	7380226 90	7380228 90
100	7380226 100	7380228 100
110		7380228 110
120	7380226 120	7380228 120

	500 ≥14: box = 200 ≥45: box = 100	500 ≥14: box = 200 ≥25: box = 100 ≥100: box = 50
		
c	1.2	1.5
dk	13.6	17.8
k	3.3	4.4
t	2.08	2.6
<b>Tamanho</b> Drive size	SW 4	SW 5



**UTILIZAÇÕES**

Aparafusamentos em chapa em instalações sanitárias e de aquecimento

Utilização em espaços húmidos e em aplicações no exterior sem teores de cloretos e dióxido de enxofre dignos de nota

**APPLICATIONS**

Sheet metal screw in the bathroom - and heating

Use in damp rooms and outdoor applications without significant levels of chlorides and Schwefeldioxyden

**CARACTERÍSTICAS**

- "O" = capacidade de carga reduzida

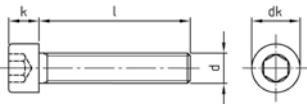
**FEATURES**

- "O" = reduced load capacity



## ISO 4762 A2

Alt. Norma  
anteriormente DIN 912



### UTILIZAÇÕES

Ideal para aparafusamentos no setor das máquinas e no setor solar.

### APPLICATIONS

Ideal for screw connections in the machine and solar area.




## ISO 4762 A2

Parafusos cab. cilíndrica com sextavado interior, rosca total

ISO 4762 A2

Hexagon socket head cap screws, fullthread


d	M 8
l/mm	Núm.-art./Item no.
12	476228 12
14	476228 14
16	476228 16
20	476228 20
22	476228 22
25	476228 25
30	476228 30
35	476228 35
40	476228 40/40
45	476228 45/45
50	476228 50/50
55	476228 55/55
60	476228 60/60
70	476228 70/70
80	476228 80/80
90	476228 90/90

	500 ≥14: box = 200 ≥25: box = 100 ≥70: box = 50
dk	13
k	8
Tamanho Drive size	SW 6

**ISO 4762 A2**  
**Parafusos cab. cil., sextavado int. serrilhado, rosca total**

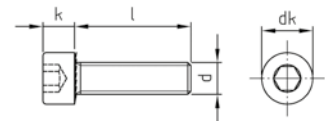
ISO 4762 A2  
 Hexagon socket head cap screws with serration

d	M 8
l/mm	Núm.-art./Item no.
12	4762208 12
14	4762208 14
16	4762208 16
20	4762208 20
22	4762208 22
25	4762208 25
28	4762208 28
30	4762208 30
35	4762208 35

	500 ≥14: box = 200 ≥55: box = 100
dk	13
k	8
<b>Tamanho</b> Drive size	SW 6

**ISO 4762**  
**A2**

Alt. Norma  
 anteriormente DIN 912



**UTILIZAÇÕES**

Ideal para aparafusamentos no setor das máquinas e no setor solar.

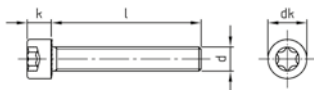
**APPLICATIONS**

Ideal for screw connections in the machine and solar area.



**ISO 14579  
A2**

Alt. Norma  
anteriormente DIN 912



**UTILIZAÇÕES**

Para aparafusamentos em sub-  
estruturas de montagem para insta-  
lações fotovoltaicas.

Utilização em espaços húmidos  
e em aplicações no exterior sem  
teores de cloretos e dióxido de  
enxofre dignos de nota.

**APPLICATIONS**

For screw connections on assem-  
bly substructures for photovoltaic  
systems.

Use in damp rooms and outdoor  
applications without significant levels  
of chlorides or sulphur dioxides.

**ISO 14579 A2 TX VG**  
**Parafusos cab. cil., hexalobular, serrilhado**

*ISO 14579 A2 TX VG*  
*Socket head cap screws serration six lobe drive*


d	l	dk	k	Tamanho Drive size	Número de artigo Item Number	
8	16	13	8	TX40	14579208 16	200
	18	13	8	TX40	14579208 18	200
	20	13	8	TX40	14579208 20	200
	22	13	8	TX40	14579208 22	200
	25	13	8	TX40	14579208 25	200
	30	13	8	TX40	14579208 30	200
	35	13	8	TX40	14579208 35	200
	40	13	8	TX40	14579208 40	200
	45	13	8	TX40	14579208 45	200
	50	13	8	TX40	14579208 50	200
	60	13	8	TX40	14579208 60	100

**DIN 603 A2 rosca total**  
**Parafusos cab.redonda saliência quadrada**

DIN 603 A2

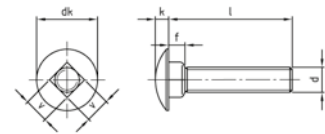
*Mushroom head square neck bolts, fullthread*

d	M10
l/mm	Núm.-art./Item no.
20	0603210 20
25	0603210 25
30	0603210 30
35	0603210 35/35
40	0603210 40/40
45	0603210 45/45
50	0603210 50/50
60	0603210 60/60

	100 ≥50: box = 50
dk	24.65
f	6.6
k	5.38
v	10.58

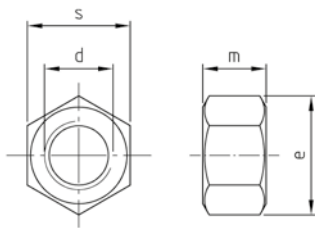
**DIN 603**  
**A2**

Alt. Norma  
 substituído por ISO 8677



## DIN 934 A2

Alt. Norma  
substituído por ISO 4032




## DIN 934 A2 Porcas sextavadas

DIN 934 A2  
Hexagon nuts

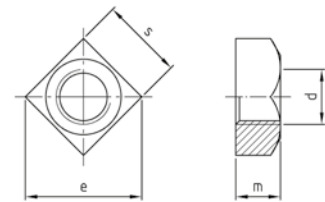
d	p	m	e	Tamanho Drive size	Número de artigo Item Number	
6	1	5	11,05	SW 10	093426	1000
8	1,25	6,5	14,38	SW 13	093428	500
10	1,5	8	18,9	SW 17	0934210	200
12	1,75	10	21,1	SW 19	0934212	200

## DIN 557 A2 Porcas quadradas

DIN 557 A2  
Square nuts

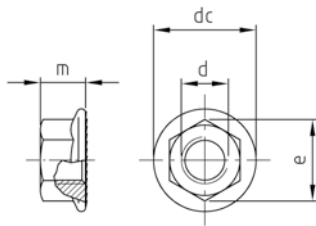
d	e	m	Tamanho Drive size	Número de artigo Item Number	
6	14,1	5	SW 10	055726	200
8	18,4	6,5	SW 13	055728	200
10	24	8	SW 17	0557210	100
12	26,9	10	SW 19	0557212	100

DIN 557  
A2



## DIN 6923 A2

Alt. Norma  
substituído por ISO 4161



### UTILIZAÇÕES

Fixação de placas de adaptação e outros componentes com necessidade de superfícies de contacto grandes.

Utilização em espaços húmidos e em aplicações no exterior, incluindo atmosferas industriais e áreas próximas da costa.

### APPLICATIONS

Attach adapter plates and other components with a large, required supporting surface.

Use in wet rooms and outdoor applications (A2) including industrial and marine environment (A4).

## DIN 6923 A2 Porcas sext. com flange e serrilhado de bloqueio


DIN 6923 A2  
Hexagon flange nuts with serration

d	m	dc	e	Tamanho Drive size	Número de artigo Item Number	
6	6	14,2	11,05	SW 10	692326	200
8	8	17,9	14,38	SW 13	692328	100
10	10	21,8	16,64	SW 15	6923210	100
12	12	26	20,03	SW 18	6923212	100

## DIN 6926 A2 Porcas flangeadas autobloq. com serrilhado

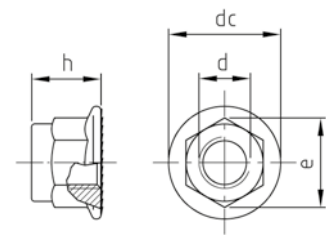
DIN 6926 A2

Hexagon flange nuts with serration

d	h	dc	e	Tamanho Drive size	Número de artigo Item Number	
6	9,1	14,2	11,05	SW 10	692626	500
8	11,1	17,9	14,38	SW 13	692628	100
10	13,5	21,8	16,64	SW 15	6926210	100
12	16,1	26	20,03	SW 18	6926212	100

DIN 6926  
A2

Alt. Norma  
em alternativa DIN 1663



### UTILIZAÇÕES

Fixação de placas de adaptação e outros componentes com necessidade de superfícies de contacto grandes.

Utilização em espaços húmidos e em aplicações no exterior, incluindo atmosferas industriais e áreas próximas da costa.

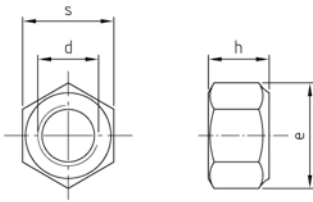
### APPLICATIONS

Attach adapter plates and other components with a large, required supporting surface.

Use in wet rooms and outdoor applications including industrial and marine environment.


## DIN 985 A2

Alt. Norma  
substituído por ISO 10511



## DIN 985 A2 Porcas sextavadas, frenantes, forma baixa


DIN 985 A2  
Self-locking hexagon nuts, thin type

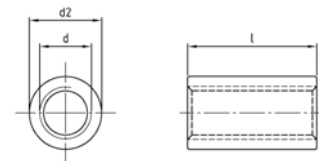
d	p	e	h	Tamanho Drive size	Número de artigo Item Number	
6	1	11,05	6	SW 10	098526	500
8	1,25	14,38	8	SW 13	098528	500
10	1,5	18,9	10	SW 17	0985210	200
12	1,75	21,1	12	SW 19	0985212	200

**Artigo 9070 A2**  
**Casquilhos redondos**

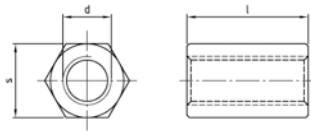
*Item 9070 A2*  
*Round coupler nuts*

**Art. 9070**  
**A2**

d	l	d2	Número de artigo Item Number	
8	20	11	907028 20	100
	25	11	907028 25	100
	30	11	907028 30	100
	35	11	907028 35	100
	40	11	907028 40	100
10	50	11	907028 50	100
	20	13	9070210 20	100
	25	13	9070210 25	100
	30	13	9070210 30	100
12	40	13	9070210 40	100
	30	15	9070212 30	50
	40	15	9070212 40	50
	50	15	9070212 50	50




**Art. 9071  
A2**




**Artigo 9071 A2  
Casquilhos sextavados**

*Item 9071 A2  
Hexagon coupler nuts*

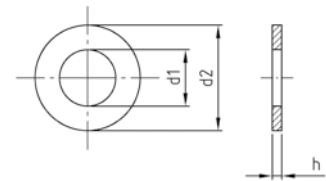
d	l	Tamanho Drive size	Número de artigo Item Number	
8	25	SW 13	907128 25	100
	30	SW 13	907128 30	100
10	25	SW 17	9071210 25	100
	30	SW 17	9071210 30	100
	40	SW 17	9071210 40	100
12	30	SW 19	9071212 30	50
	40	SW 19	9071212 40	50

## DIN 125 A2 Anilhas forma A

DIN 125 A2  
Washers type A

d1	d2	h	Número de artigo Item Number	
6,4	12	1,6	0125264	1000
8,4	16	1,6	0125284	500
10,5	20	2	01252105	500
13	24	2,5	01252130	200

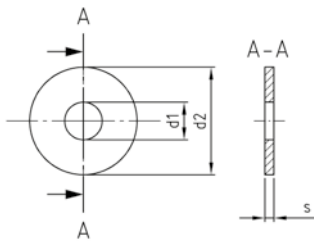
DIN 125 A  
A2  
Alt. Norma  
substituído por ISO 7089



CARACTERÍSTICAS  
- forma A  
FEATURES  
- type A


## DIN 9021 A2

Alt. Norma  
substituído por ISO 7093-1




## DIN 9021 A2 Anilhas diâmetro exterior ~ 3 x diâmetro da rosca

DIN 9021 A2  
Washers with outside diameter  $\approx 3x$  nominal thread diameter

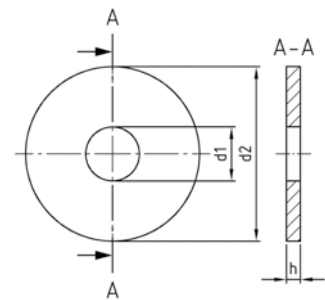
d1	d2	s	Número de artigo Item Number	
6,4	18	1,6	9021264	1000
8,4	24	2	9021284	500
10,5	30	2,5	90212105	500
13	37	3	90212130	200

## DIN 440 A2 R Anilhas para construções em madeira forma R

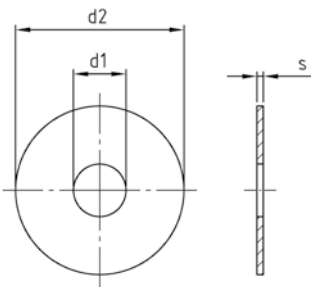
DIN 440 A2 R  
Washers for wood constructions type R

d1	d2	h	Número de artigo Item Number	
6,6	22	2	0440266	200
9	28	3	0440290	200
11	34	3	04402110	100
13,5	44	4	04402135	100

DIN 440 R  
A2  
Alt. Norma  
substituído por ISO 7094



**Art. 9054  
A2**




**Artigo 9054 A2  
Anilhas**

*Item 9054 A2  
Penny washers*

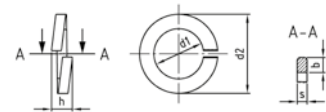
d1	d2	s	Número de artigo Item Number	
6,4	20	1,5	9054220 64	500
	35	1,5	9054235 64	200
	40	1,5	9054240 64	200
	25	1,5	9054225 64	200
	30	1,5	9054230 64	200
8,4	35	1,5	9054235 84	200
	30	1,5	9054230 84	200
	25	1,5	9054225 84	200
	20	1,5	9054220 84	500
	40	1,5	9054240 84	200
10,5	40	1,5	9054240 105	200
	35	1,5	9054235 105	200
	30	1,5	9054230 105	200
	25	1,5	9054225 105	200
	40	1,5	9054240 125	200
12,5	35	1,5	9054235 125	200
	30	1,5	9054230 125	200

**DIN 127 1.4310**  
**Anilhas de mola forma B**

DIN 127 1.4310  
Spring lock washers type B

d1	d2	b	h	s	Número de artigo Item Number	
6,1	11,8	2,5	3,2	1,6	012726	1000
8,1	14,8	3	4	2	012728	1000
10,2	18,1	3,5	4,4	2,2	0127210	1000
12,2	21,1	4	5	2,5	0127212	500

**DIN 127 B**  
**A1**



**CARACTERÍSTICAS**  
- forma B


**FEATURES**  
- type B

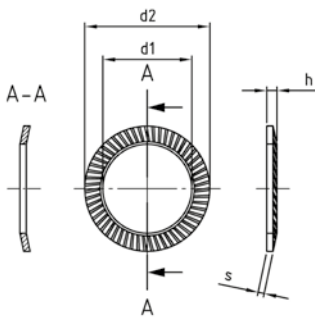
**Art. 9093  
A2**



**Artigo 9093 A2  
Anilhas de segurança forma S**

*Item 9093 A2  
Safety washers type S*

d1	d2	h	s	Número de artigo Item Number	
6,4	10	1,2	0,7	909326	1000
8,4	13	1,4	0,8	909328	1000
10,5	16	1,6	1	9093210	1000
13	18	1,7	1,1	9093212	500



**APPLICATIONS**  
The safety washers type "S" is suitable for normal use.


## Artigo 9097 A2 Parafusos cabeça de martelo tipo 28/15

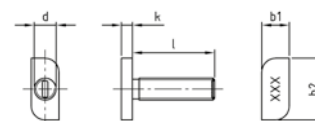
Art. 9097  
A2

Item 9097 A2

Hammer head bolts type 28/15

d	M8	M10
l/mm	Núm.-art./Item no.	Núm.-art./Item no.
16	909728 16	
20	909728 20	9097210 20
25	909728 25	9097210 25
30	909728 30	9097210 30
35	909728 35	9097210 35
40	909728 40	9097210 40
45	909728 45	9097210 45
50	909728 50	9097210 50
53	909728 53	
60	909728 60	9097210 60
70	909728 70	9097210 70
80	909728 80	9097210 80
100	909728 100	

	100	100
b1	10	10
b2	22.73	22.73
k	4	4.5



### UTILIZAÇÕES

Ideal para aparafusamentos no setor do metal e no setor solar.

### APPLICATIONS

For profiles 28/12, 28/15, 28/28, 28/38, 26/26, 26/18

**Art. 9097  
A2**

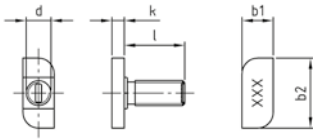


**Prf. cabeça de martelo com quadrado tipo 28/15**

*Item 9097 A2*

*Hammer head square neck bolts, type 28/15*

d	l	k	b1	b2	Número de artigo Item Number	
8	20	4	10	22,4	9097208 20	100
	40	4	10	22,4	9097208 40	100
	45	4	10	22,4	9097208 45	100



**UTILIZAÇÕES**

**Ideal para aparafusamentos no setor do metal e no setor solar.**


**APPLICATIONS**

*For profiles 28/12, 28/15, 28/28, 28/38, 26/26, 26/18*

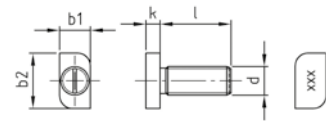
**Art. 9197 A2**  
**Parafusos cabeça de martelo tipo 20/12**

Item 9197 A2

Hammer head bolts, type 20/12

d	l	k	b1	b2	Número de artigo Item Number	
8	20	4	8,7	15,5	919728 20	100
	25	4	8,7	15,5	919728 25	100
	30	4	8,7	15,5	919728 30	100

**Art. 9197**  
**A2**



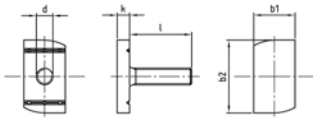
**UTILIZAÇÕES**

Ideal para aparafusamentos no setor do metal, calhas tipo 20/12 e no setor solar.

**APPLICATIONS**

Ideal for screw in the metal industry, rail type 20/12 and the solar sector.

**Art. 9019  
A2**



**UTILIZAÇÕES**

Ideal para aparafusamentos no setor do metal e no setor solar.


**APPLICATIONS**

For profiles 41/21 and 41/41

**Artigo 9019 A2**  
**Paraf. cab.martelo tipo 41/41 com dentado parcial**

*Item 9019 A2*

*Hammer head bolts type 41/41 with partial serration*


d	l	b1	b2	k	Número de artigo Item Number	
8	30	20	35,2	6	901928 30	100
10	30	20	35,2	6	9019210 30	100

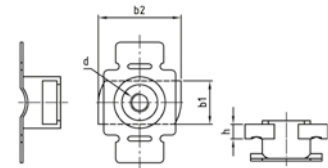
**Artigo 9199 A2**  
**Porcas p/calhas tipo 41/41 dentado parc., auxiliar de fixação**

**Art. 9199**  
**A2**

Item 9199 A2

Sliding nuts type 41/41 partial serration and fixing help

d	b1	b2	h	Número de artigo Item Number	
6	18	34	6	919926F	100
8	19,5	34	6	919928F	100
	19,5	34	8	9199208F	100



**UTILIZAÇÕES**  
**Para perfis 41/41**


**APPLICATIONS**  
*For profiles 41/21 and 41/41*

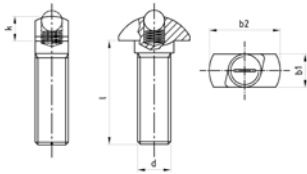
**Art. 9099  
A2**



**Artigo 9099 A2**  
**Parafusos de retenção com esfera de mola**

*Item 9099 A2*  
*Hammer head bolts with spring ball*

d	l	k	b1	b2	Número de artigo Item Number	
8	18	6	8	17,2	9099208 18	200
	22	6	8	17,2	9099208 22	200
	32	6	8	17,2	9099208 32	200
	52	6	8	17,2	9099208 52	200




**APPLICATIONS**  
Type: with pressure spring  
For profiles: S-profile

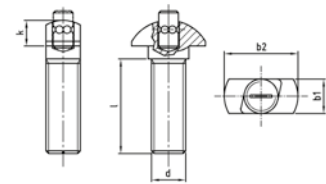
**Artigo 9099 A2**  
**Parafusos de retenção com inserto EPDM**

Item 9099 A2

Hammer head bolts with EPDM insert

**Art. 9099**  
**A2**

d	l	k	b1	b2	Número de artigo Item Number	
8	18	6	8	17,2	9099218 18	200
	22	6	8	17,2	9099218 22	200



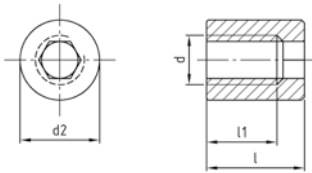
APPLICATIONS  
Type: flexible pressure element  
For profiles: S-profile

Art. 9022  
A2

Artigo 9022 A2  
Porcas sextavado int.

Item 9022 A2  
Hexagon socket nuts


d	l	d2	l1	Tamanho Drive size	Número de artigo Item Number	
8	16	13	11	SW 6	902228 16	1200

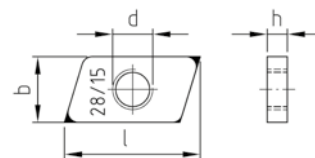


## Artigo 9297 A2 Placas roscadas

Item 9297 A2  
Threaded plates

Art. 9297  
A2

d	l	b	h	Número de artigo Item Number	
8	27	13	4	9297208	200
10	27	13	4	9297210	200



### UTILIZAÇÕES

Para perfis 28/38, 28/28, 28/15, 28/12,  
26/26


### APPLICATIONS

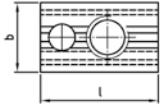
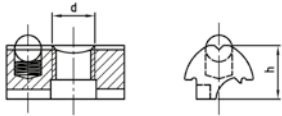
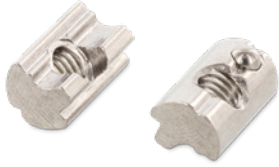
For profiles 28/38, 28/28, 28/15, 28/12,  
26/26

Art. 9037  
A2

Artigo 9037 A2  
Peças para ranhura com guia e esfera de mola

Item 9037 A2  
T-slot nuts, self aligning with spring ball


d	l	b	h	Número de artigo Item Number	
8	22	13	10	903728	100

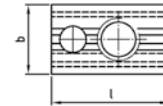
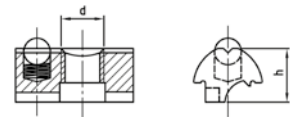
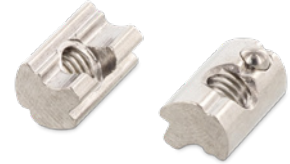


**Artigo 9037 ALU**  
**Peças para ranhura com guia e esfera de mola**

*Item 9037 ALU*  
*T-slot nuts, self aligning with spring ball*

**Art. 9037**  
**Alumínio**


d	l	b	h	Número de artigo Item Number	
8	22	13	10	90370813 10	100
	22	17	9	90370817 9	1000

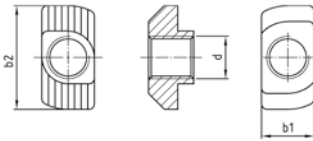


Art. 9023  
A4

Artigo 9023 A4  
Porcas martelo para ranhura 10 mm

Item 9023 A4  
Hammer nuts for groove 10 mm

d	b1	b2	Número de artigo Item Number	
8	9,9	19,5	902348	500




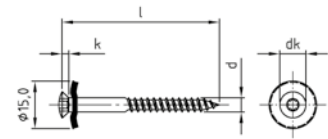
**Artigo 9087 A2 TX 20**  
**Prf. de funileiro 2 pç. com anilha vedante 15 mm**

**Art. 9087**  
**A2**

Item 9087 A2 TX 20

RSD CSK woodscrews, bonded sealing washer 15 mm

d	l	dk	k	Tamanho Drive size	Número de artigo Item Number	
4,5	25	8,3	2,35	TX20	908722045 25	200
	35	8,3	2,35	TX20	908722045 35	200
	45	8,3	2,35	TX20	908722045 45	200
	55	8,3	2,35	TX20	908722045 55	200



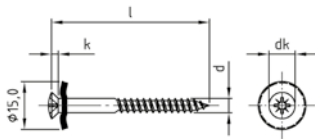
**UTILIZAÇÕES**

- Para a utilização no exterior e em espaços húmidos.
- Processamento de chapas em subestruturas de madeira.
- Para a utilização de paramentos com chapas para áticos.

**APPLICATIONS**

- For outdoor use and in damp conditions.
- Sheet metal processing on wooden structures.
- For use with delusions of Attica sheets.

## Art. 9067 A2



### UTILIZAÇÕES

- Para a utilização no exterior e em espaços húmidos.
- Processamento de chapas em subestruturas de madeira.
- Para a utilização de paramentos com chapas para áticos.

### APPLICATIONS

- For outdoor use and in damp conditions.
- Sheet metal processing on wooden structures.
- For use with delusions of Attica sheets

## Artigo 9067 A2 PZ Prf. de funileiro 2 pç. com anilha vedante 15 mm

Item 9067 A2 PZ

RSD CSK woodscrews, bonded sealing washer 15 mm


d	l	dk	k	Tamanho Drive size	Número de artigo Item Number	
4,5	25	8,3	2,35	PZ2	906722045 25	200
	35	8,3	2,35	PZ2	906722045 35	200
	45	8,3	2,35	PZ2	906722045 45	200
	55	8,3	2,35	PZ2	906722045 55	200

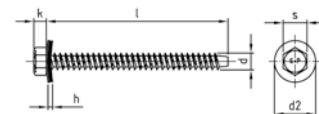
**Artigo 9057 A2 6,3 BZ**  
**Prf p/ fachadas ponta pino anilha vedante 16 mm**

**Art. 9057 BZ**  
**A2**

Item 9057 A2 6,3 BZ

Cladding screws with cone point sealing washer 16 mm

d	l	b	d2	h	k	Tamanho Drive size	Número de artigo Item Number	
6,3	16	16	16	3	4,6	SW 3/8"	9057263 16	500
	19	19	16	3	4,6	SW 3/8"	9057263 19	500
	25	25	16	3	4,6	SW 3/8"	9057263 25	200
	32	32	16	3	4,6	SW 3/8"	9057263 32	200
	38	38	16	3	4,6	SW 3/8"	9057263 38	200
	45	45	16	3	4,6	SW 3/8"	9057263 45	200
	50	50	16	3	4,6	SW 3/8"	9057263 50	200
	64	64	16	3	4,6	SW 3/8"	9057263 64	100
	75	64	16	3	4,6	SW 3/8"	9057263 75	100
	90	64	16	3	4,6	SW 3/8"	9057263 90	100
	100	64	16	3	4,6	SW 3/8"	9057263 100	100
	115	64	16	3	4,6	SW 3/8"	9057263 115	100
	130	64	16	3	4,6	SW 3/8"	9057263 130	100
	150	64	16	3	4,6	SW 3/8"	9057263 150	100
	175	64	16	3	4,6	SW 3/8"	9057263 175	100
	200	64	16	3	4,6	SW 3/8"	9057263 200	100
	220	64	16	3	4,6	SW 3/8"	9057263 220	100
	240	64	16	3	4,6	SW 3/8"	9057263 240	100
260	64	16	3	4,6	SW 3/8"	9057263 260	100	



**UTILIZAÇÕES**

A fixação de chapas perfiladas e fibrocimento em subestruturas em madeira, aço e alumínio

Os respetivos diâmetros de perfuração podem ser consultados nas homologações de construção.

Madeira: Deve ser observada uma profundidade de enrocamento mínima de 30 mm

Aço: O pino deve ficar 7 mm saliente numa subestrutura de metal.

**APPLICATIONS**

For securing profile sheets and fibre cement slabs to steel and aluminium substructures

Please refer to the building-authority approvals for the relevant hole diameters

Steel: In the case of metal substructures, the dog point should protrude by 7mm

**CARACTERÍSTICAS**

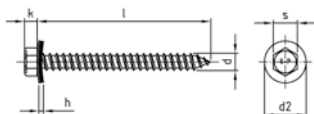
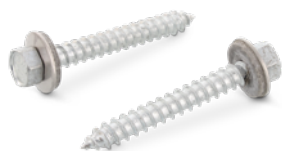
- Forma BZ
- Rosca fina com pino para subestruturas de metal > 3 mm
- ETA-13/0178 válida a partir de L 75 mm
- Parafusos de fixação para painéis sandwich

**FEATURES**

- type BZ
- Fine thread with cone point for steel substructures > 3mm
- ETA-13/0178 valid from L 75 mm
- Fastening screws for sandwich panels



## Art. 9057 A A2



### UTILIZAÇÕES

A fixação de chapas perfiladas e fibrocimento em subestruturas em madeira, aço e alumínio

Os respetivos diâmetros de perfuração podem ser consultados nas homologações de construção.

Madeira: Deve ser observada uma profundidade de enroscamento mínima de 30 mm

Aço: O pino deve ficar 7 mm saliente numa subestrutura de metal.

### APPLICATIONS

For securing profile sheets and fibre cement slabs to timber, steel and aluminium substructures

Please refer to the building-authority approvals for the relevant hole diameters

Timber: Observe a minimum screw-in depth of 30 mm

Steel: In the case of metal substructures, the tip should protrude

### CARACTERÍSTICAS

- Forma A
- Rosca larga com ponta para subestruturas de madeira e para chapas de paredes finas < 3 mm
- ETA -13/0178 válida a partir de L 75 mm
- Parafusos de fixação para painéis sandwich

### FEATURES

- type A
- Coarse thread with tip for timber substructures and thin sheet metal < 3mm
- ETA-13/0178 valid from L 75 mm
- Fastening screws for sandwich panels



## Artigo 9057 A2 6,5 A Prf para fachadas com bico anilha vedante 16 mm

Item 9057 A2 6,5 A

Cladding screws with point sealing washer 16 mm

d	l	b	d2	h	k	Tamanho Drive size	Número de artigo Item Number	
6,5	13	13	16	3	4,6	SW 3/8"	9057265 13	500
	16	16	16	3	4,6	SW 3/8"	9057265 16	500
	19	19	16	3	4,6	SW 3/8"	9057265 19	500
	25	25	16	3	4,6	SW 3/8"	9057265 25	200
	32	32	16	3	4,6	SW 3/8"	9057265 32	200
	38	38	16	3	4,6	SW 3/8"	9057265 38	200
	40	40	16	3	4,6	SW 3/8"	9057265 40	200
	45	45	16	3	4,6	SW 3/8"	9057265 45	200
	50	50	16	3	4,6	SW 3/8"	9057265 50	200
	55	55	16	3	4,6	SW 3/8"	9057265 55	200
	60	60	16	3	4,6	SW 3/8"	9057265 60	200
	64	64	16	3	4,6	SW 3/8"	9057265 64	100
	75	64	16	3	4,6	SW 3/8"	9057265 75	100
	90	64	16	3	4,6	SW 3/8"	9057265 90	100
	100	64	16	3	4,6	SW 3/8"	9057265 100	100
	115	64	16	3	4,6	SW 3/8"	9057265 115	100
130	64	16	3	4,6	SW 3/8"	9057265 130	100	
150	64	16	3	4,6	SW 3/8"	9057265 150	100	
175	64	16	3	4,6	SW 3/8"	9057265 175	100	
200	64	16	3	4,6	SW 3/8"	9057265 200	100	
220	64	16	3	4,6	SW 3/8"	9057265 220	100	
240	64	16	3	4,6	SW 3/8"	9057265 240	100	
260	64	16	3	4,6	SW 3/8"	9057265 260	100	

## DIN 7504 M A2 TX Parafusos autoperfurantes cab. lenticular, forma M

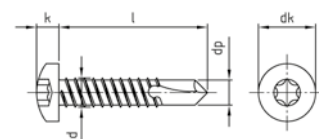
DIN 7504 M A2 TX  
Self drilling screws with pan head type M

d	4,2	4,8	5,5
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
13	75042MT42 13	75042MT48 13	
16	75042MT42 16	75042MT48 16	75042MT55 16
19	75042MT42 19	75042MT48 19	75042MT55 19
22	75042MT42 22	75042MT48 22	75042MT55 22
25	75042MT42 25	75042MT48 25	75042MT55 25
32	75042MT42 32	75042MT48 32	75042MT55 32
38	75042MT42 38	75042MT48 38	75042MT55 38
40			75042MT55 40
45	75042MT42 45	75042MT48 45	75042MT55 45
50	75042MT42 50	75042MT48 50	75042MT55 50
60	75042MT42 60	75042MT48 60	75042MT55 60
70		75042MT48 70	75042MT55 70
75		75042MT48 75	75042MT55 75

	1000 ≥32: box=500	500	1000 ≥25: box=500 ≥45: box=200
dk	8.2	9.5	10.8
dp	3.6	4.1	4.8
k	3.05	3.55	3.95
p	1.4	1.5	1.7
perfura. Drillrange	1,75-3,0	1,75-4,4	1,75-5,25
Tamanho Drive size	TX20	TX25	TX25

## DIN 7504 M A2

Alt. Norma  
substituído por ISO 15481



### UTILIZAÇÕES

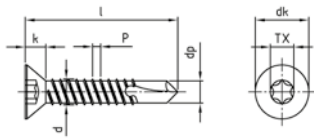
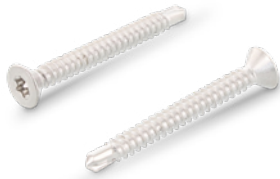
Atenção, apenas para metais macios

### APPLICATIONS

Attention: only for soft metals

## DIN 7504 O A2

Alt. Norma  
substituído por ISO 15482



### UTILIZAÇÕES

Atenção, apenas para metais macios

### APPLICATIONS

Attention: only for soft metals

## DIN 7504 O A2 TX Parafusos autoperfurantes cab.embutida, forma O

DIN 7504 O A2 TX  
Self drilling screws with countersunk head type O

d	4,2	4,8	5,5
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
13	75042OT42 13	75042OT48 13	
16	75042OT42 16	75042OT48 16	
19	75042OT42 19	75042OT48 19	75042OT55 19
22	75042OT42 22	75042OT48 22	75042OT55 22
25	75042OT42 25	75042OT48 25	75042OT55 25
28		75042OT48 28	
32	75042OT42 32	75042OT48 32	75042OT55 32
38	75042OT42 38	75042OT48 38	75042OT55 38
45	75042OT42 45	75042OT48 45	75042OT55 45
50	75042OT42 50	75042OT48 50	75042OT55 50
60	75042OT42 60	75042OT48 60	75042OT55 60

	1000	1000 ≥25: box=500	1000 ≥25: box=500 ≥40: box=200
dk	8.4	9.3	10.3
dp	3.6	4.1	4.8
k	2.6	2.8	3
p	1.4	1.5	1.7
perfura. Drillrange	1,75-3,0	1,75-4,4	1,75-5,25
Tamanho Drive size	TX20	TX25	TX25

## DIN 7504 K A2 Paraf. autoperfurantes cab.sext. e borda, forma K

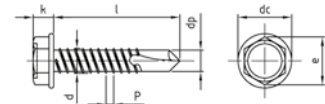
DIN 7504 K A2  
Self drilling screws hexagon flange head type K

d	4,8	5,5	6,3
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
13	75042K48 13	75042K55 13	75042K63 13
16	75042K48 16	75042K55 16	75042K63 16
19	75042K48 19	75042K55 19	75042K63 19
22	75042K48 22	75042K55 22	75042K63 22
25	75042K48 25	75042K55 25	75042K63 25
28		75042K55 28	
30		75042K55 30	
32	75042K48 32	75042K55 32	75042K63 32
35	75042K48 35	75042K55 35	
38	75042K48 38	75042K55 38	75042K63 38
40		75042K55 40	
45	75042K48 45	75042K55 45	75042K63 45
50	75042K48 50	75042K55 50	75042K63 50
60	75042K48 60	75042K55 60	75042K63 60
70	75042K48 70	75042K55 70	75042K63 70
75		75042K55 75	75042K63 75
80	75042K48 80	75042K55 80	75042K63 80
90	75042K48 90	75042K55 90	75042K63 90
100	75042K48 100	75042K55 100	75042K63 100
110		75042K55 110	75042K63 110
120		75042K55 120	
125		75042K55 125	75042K63 125
130		75042K55 130	
140		75042K55 140	
150		75042K55 150	75042K63 150

	500 ≥60: box=200	500 ≥50: box=200 ≥125: box=100	500 ≥50: box=200 ≥100: box=100
dc	10,5	11	
dp	4,1	4,8	5,8
e	8,71	8,71	10,95
k	4,3	5,4	5,9
p	1,5	1,7	2
perfura. Drillrange	1,75-4,4	1,75-5,25	2,0-6,0
Tamanho Drive size	SW 8	SW 8	SW 10

## DIN 7504 K A2

Alt. Norma  
substituído por ISO 15480

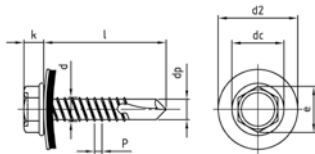


**UTILIZAÇÕES**  
Atenção, apenas para metais macios

APPLICATIONS  
Attention: only for soft metals

## DIN 7504 K A2

Alt. Norma  
substituído por ISO 15480



### UTILIZAÇÕES

Atenção, apenas para metais macios

### APPLICATIONS


Attention: only for soft metals

## DIN 7504 KO A2 – Paraf. autoperfurantes cab.sext. e borda, forma K, 16mm anilha vedante

DIN 7504 KO A2

Self drilling screws hexagon flange head type K, 16 mm sealing washer

d	
5,5	
l/mm	Núm.-art./Item no.
19	75042KO55 19
22	75042KO55 22
25	75042KO55 25
28	75042KO55 28
30	75042KO55 30
32	75042KO55 32
35	75042KO55 35
38	75042KO55 38
45	75042KO55 45
50	75042KO55 50
58	75042KO55 58
65	75042KO55 65
70	75042KO55 70


	500 ≥50: box = 200
d2	16
dc	11
dp	4.8
e	8.71
k	5.4
p	1.7
perfura. Drillrange	1,75-5,25
Tamanho Drive size	SW 8

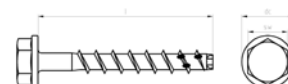
## Artigo 9001 A4 Parafusos sextavados para betão ETA 21/0425

Art. 9001  
A4

Item 9001 A4

Hexagon head concrete bolts ETA 21/0425

d	l	do furo -Ø Drill hole	de aperto clamp.stre	Tamanho Drive size	Número de artigo Item Number	
7,5	50	6		SW 13	90014075 50	100
	60	6	5	SW 13	90014075 60	100
10	70	8	5	SW 13	90014010 70	50
	80	8	15	SW 13	90014010 80	50
12	90	10	5	SW 15	90014012 90	50
	100	10	15	SW 15	90014012 100	50
	120	10	35	SW 15	90014012 120	50



### UTILIZAÇÕES

Ideal para aparafusamentos no exterior como p. ex. subestruturas, construção de balaustradas, pontes ou cercas, placas, armários e sistemas do setor solar.

### APPLICATIONS

Ideal for outdoor screw connections such as substructures, construction of rails, bridges or fences, signs, cabinets and solar systems.

### CARACTERÍSTICAS

- Com teste de proteção contra incêndio
- Acionamento sextavado
- Equipamento de metal duro

### FEATURES

- Tested for fire protection
- Hex drive
- carbide-tipped



## Art. 9001 A4

## Artigo 9001 A4 Parafusos cabeça de embutir para betão ETA 21/0425

Item 9001 A4  
Countersunk concrete bolts ETA 21/0425



d	l	do furo - Ø Drill hole	de aperto clamp.stre	dk	Tamanho Drive size	Número de artigo Item Number	
7,5	50	6	-	13	TX30	90014175 50	100
	65	6	10	13	TX30	90014175 65	100
	85	6	30	13	TX30	90014175 85	100
	105	6	50	13	TX30	90014175 105	100
10	80	8	15	19,5	TX40	90014110 80	50
12	90	10	5	21,5	TX50	90014112 90	50



### UTILIZAÇÕES

Ideal para aparafusamentos no exterior como p. ex. subestruturas, construção de balaustradas, pontes ou cercas, placas, armários e sistemas do setor solar.

### APPLICATIONS

Ideal for outdoor screw connections such as substructures, construction of rails, bridges or fences, signs, cabinets and solar systems.

### CARACTERÍSTICAS

- Com teste de proteção contra incêndio
- Acionamento com dentado interior arredondado TX
- Equipamento de metal duro

### FEATURES

- Tested for fire protection
- TX drive
- carbide-tipped




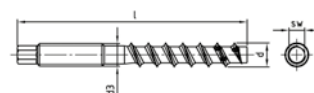
## Artigo 9001 A4 Perno de duas roscas com hexágono ETA 15/0514

Art. 9001  
A4

Item 9001 A4

Concrete dowel screws with hexagon end ETA 15/0514

d	l	do furo -Ø Drill hole	de aperto clamp.stre	d3	Tamanho Drive size	Número de artigo Item Number	
10	103	8	20	21	SW 7	90014310 105	50
12	140	10	32	21	SW 9	90014312 140	50
	160	10	52	21	SW 9	90014312 160	50



### UTILIZAÇÕES

Ideal para aparafusamentos no exterior como p. ex. subestruturas, construção de balaustradas, pontes ou cercas, placas, armários e sistemas do setor solar.

### APPLICATIONS

Ideal for outdoor screw connections such as substructures, construction of rails, bridges or fences, signs, cabinets and solar systems.

### CARACTERÍSTICAS

- Com teste de proteção contra incêndio
- Acionamento sextavado
- Equipamento de metal duro

### FEATURES

- Tested for fire protection
- Hex drive
- carbide-tipped



## Art. 9001 A4

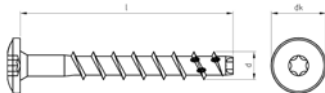
## Artigo 9001 A4 Parafusos de cabeça cilíndrica para betão ETA 21/0425

Item 9001 A4

Pan head concrete bolts ETA 21/0425



d	l	do furo - Ø Drill hole	de aperto clamp.stre	dk	Tamanho Drive size	Número de artigo Item Number	
7,5	50	6		15	TX30	90014275 50	100
	60	6	5	15	TX30	90014275 60	100
	80	6	25	15	TX30	90014275 80	100
	100	6	45	15	TX30	90014275 100	100



### UTILIZAÇÕES

Ideal para aparafusamentos no exterior como p. ex. subestruturas, construção de balaustradas, pontes ou cercas, placas, armários e sistemas do setor solar.

### APPLICATIONS

Ideal for outdoor screw connections such as substructures, construction of rails, bridges or fences, signs, cabinets and solar systems.

### CARACTERÍSTICAS

- Proteção contra incêndios testada
- Acionamento da cabeça da lente
- Ponta de carboneto
- Acionamento TX

### FEATURES

- Tested for fire protection
- Pan head
- carbide-tipped
- TX drive

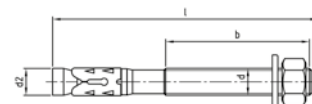


**Artigo 9004 A4**  
**Cavilha de fixação opção 1, ETA-11/0196**

**Art. 9004**  
**A4**

Item 9004 A4  
 Heavy duty wedge anchor option 1, ETA-11/0196

d	l	do furo -Ø Drill hole	b	d2	de aperto clamp.stre	Tamanho Drive size	Número de artigo Item Number	
8	68	8	30	8	4	SW 13	900448 4/68	100
	75	8	30	8	10	SW 13	900448 10/75	100
	90	8	40	8	25	SW 13	900448 25/90	100
	115	8	60	8	50	SW 13	900448 50/115	100
	135	8	80	8	70	SW 13	900448 70/135	100
10	165	8	80	8	100	SW 13	900448 100/165	50
	90	10	40	10	10	SW 17	9004410 10/90	50
	105	10	55	10	25	SW 17	9004410 25/105	50
	115	10	55	10	35	SW 17	9004410 35/115	50
	135	10	85	10	55	SW 17	9004410 55/135	50
12	155	10	85	10	75	SW 17	9004410 75/155	50
	185	10	85	10	105	SW 17	9004410 105/185	25
	110	12	65	12	10	SW 19	9004412 10/110	50
	120	12	65	12	20	SW 19	9004412 20/120	50
	145	12	85	12	45	SW 19	9004412 45/145	25
16	170	12	85	12	70	SW 19	9004412 70/170	25
	200	12	85	12	100	SW 19	9004412 100/200	25
	130	16	65	16	10	SW 24	9004416 10/130	20
	150	16	85	16	30	SW 24	9004416 30/150	20
	185	16	85	16	60	SW 24	9004416 60/185	20
	220	16	85	16	100	SW 24	9004416 100/220	15



**UTILIZAÇÕES**

Ideal para aparafusamentos no exterior de consolas, balaustradas, prateleiras, fachadas, suportes para cabos, vigas de aço e grades para janelas.

Respeitar o modelo de montagem!

**APPLICATIONS**

Used in damp rooms and in outdoor applications, including industrial atmospheres and near coasts  
 Note assembly template

**CARACTERÍSTICAS**

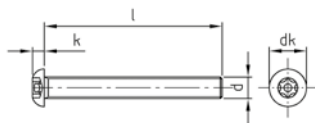
- Fixação apta a suportar esforços médios a elevados para betão fissurado e não fissurado
- Com teste de proteção contra incêndio

**FEATURES**

- Medium to heavy-duty fastening for cracked and non-cracked concrete
- Tested for fire protection



## Art. 9121 A2



### UTILIZAÇÕES

A proteção ideal contra ladrões de ocasião, uma vez que se impede um desaperto fácil graças a uma ferramenta de montagem especial

### APPLICATIONS

The ideal protection before occasional thieves, because light solving is prevented by a special assembly plant stuff.

### CARACTERÍSTICAS

- Rosca métrica
- Dentado interior arredondado e pino
- Cabeça redonda plana

### FEATURES

- Metric thread
- ISR + PIN
- Button head

## Artigo 9121 A2

### Prf. segurança cab. redonda hexalobular e pino, rosca métrica

#### Item 9121 A2

Button head security screws with six lobe drive + pin

d	M 6	M 8	M 10
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
10	912126 10	912128 10	
12	912126 12	912128 12	
16	912126 16	912128 16	9121210 16
18	912126 18		
20	912126 20	912128 20	9121210 20
22	912126 22		
25	912126 25	912128 25	9121210 25
30	912126 30	912128 30	9121210 30
40	912126 40	912128 40	9121210 40
50	912126 50	912128 50	9121210 50
60	912126 60	912128 60	9121210 60
65		912128 65	9121210 65
70		912128 70	9121210 70


	100	100	100
dk	10.5	14	17.5
k	3.3	4.4	5.5
Tamanho Drive size	TX30 PIN	TX40 PIN	TX45 PIN

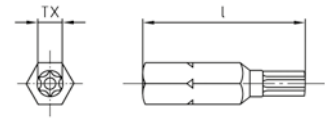
## Artigo 9129 Bits segurança para hexalobular e pino

Art. 9129  
CV

Item 9129

Security bits for six lobe drive + pin

l	Tamanho Drive size	Número de artigo Item Number	
25	TX30	912930	1
	TX40	912940	1
	TX45	912945	1



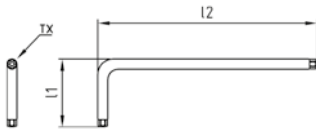
### CARACTERÍSTICAS

- Encaixe sextavado de 1/4"

FEATURES

- 1/4" hex

**Art. 9128**  
**CV**




**CARACTERÍSTICAS**  
- Orifícios dos dois lados

**FEATURES**  
- Hole on both sides

**Artigo 9128**  
**Chaves segurança em ângulo para hexalobular e pino**

*Item 9128*  
*Security wrenches for six lobe drive + pin*

l1	l2	Tamanho Drive size	Número de artigo Item Number	
26	77	TX30	912830	1
29	82	TX40	912840	1
32	88	TX45	912845	1

## Artigo 9111 A2


### Prf. segurança cab. redonda com sxt interior, pino, rosca métrica

Art. 9111  
A2

Item 9111 A2

Button head security screws hex socket drive + pin

d	M 6	M 8	M 10
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
10	911126 10	911128 10	
12	911126 12	911128 12	
16	911126 16	911128 16	9111210 16
20	911126 20	911128 20	9111210 20
25	911126 25	911128 25	9111210 25
30	911126 30	911128 30	9111210 30
40	911126 40	911128 40	9111210 40
50	911126 50	911128 50	9111210 50
60	911126 60	911128 60	9111210 60
70		911128 70	9111210 70
80			9111210 80

	100	100	100
dk	10.5	14	17.5
k	3.3	4.4	5.5
<b>Tamanho</b> Drive size	SW 4 PIN	SW 5 PIN	SW 6 PIN



#### UTILIZAÇÕES

A proteção ideal contra ladrões de ocasião, uma vez que se impede um desaperto fácil graças a uma ferramenta de montagem especial

#### APPLICATIONS

The ideal protection before occasional thieves, because light solving is prevented by a special assembly plant stuff.

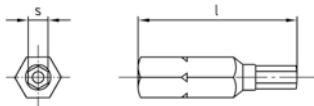
#### CARACTERÍSTICAS

- Rosca métrica
- Sextavado interior e pino
- Cabeça redonda plana

#### FEATURES

- Metric thread
- ISK + PIN
- Button head

**Art. 9119**  
**CV**




**CARACTERÍSTICAS**  
- Encaixe sextavado de 1/4"

**FEATURES**  
- 1/4" hexagon

**Artigo 9119**  
**Bits de segurança para sextavado interior e pino**

*Item 9119*  
*Security bits for hexagon socket drive + pin*


l	Tamanho Drive size	Número de artigo Item Number	
25	SW 4	91194	1
	SW 5	91195	1
	SW 6	91196	1

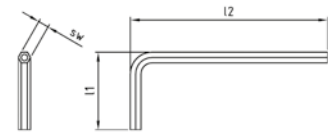
**Artigo 9118**  
**Chaves segurança em ângulo p/sextavado int. e pino**

**Art. 9118**  
**CV**

Item 9118

Security wrenches for hexagon socket drive + pin

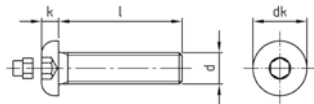
l1	l2	Tamanho Drive size	Número de artigo Item Number	
29	74	SW 4	91184	1
33	85	SW 5	91185	1
38	96	SW 6	91186	1



**CARACTERÍSTICAS**  
- Orifícios dos dois lados

**FEATURES**  
- Hole on both sides

**Art. 9140  
A2**



**UTILIZAÇÕES**

Versão: Tampa para cobrir após o aparafusamento.

A tampa é fornecida solta.

**APPLICATIONS**

Plug for smashing after the screw connection.

The plug is enclosed loose.

**CARACTERÍSTICAS**

- Rosca métrica
- Sextavado interior com tampa
- Cabeça redonda plana

**FEATURES**

- Metric screws
- ISK with plug
- Button head

**Artigo 9140 A2**

**Prf.segurança c/ redonda sextavado int. com tampa, rosca métrica**

Item 9140 A2

Hexagon socket button head screws with plug


d	M 6	M 8	M 10
l/mm	Núm.-art./Item no.	Núm.-art./Item no.	Núm.-art./Item no.
10	914026 10	914028 10	
12	914026 12	914028 12	
16	914026 16	914028 16	9140210 16
20	914026 20	914028 20	9140210 20
25	914026 25	914028 25	9140210 25
30	914026 30	914028 30	9140210 30
40	914026 40	914028 40	9140210 40
50	914026 50	914028 50	9140210 50
60	914026 60	914028 60	9140210 60

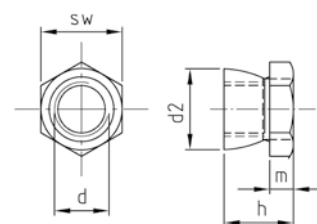
	100	100	100
dk	10.5	14	17.5
k	3.3	4.4	5.5
Tamanho Drive size	SW 4	SW 5	SW 6

## Artigo 9150 A2 nozes separatas

Item 9150 A2  
breakaway nuts

Art. 9150  
A2

d	h	d2	m	Ponto rutu Pulloff[Nm]	Tamanho Drive size	Número de artigo Item Number	
6	9,5	9,8	3,5	7-13	SW 10	915026	500
8	12	12,8	4	15-23	SW 13	915028	500
10	15	16,8	5	30-40	SW 17	9150210	200
12	16	18,8	5,5	35-45	SW 19	9150212	100



### UTILIZAÇÕES

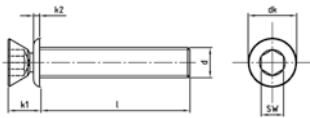
A porca de rutura em combinação com uma rosca métrica forma um componente de segurança.

### APPLICATIONS

Using pull-off nuts in conjunction with a metric thread creates a safety component.

### CARACTERÍSTICAS

## Art. 9155 A2



### UTILIZAÇÕES

Ideal para a fixação de módulos fotovoltaicos.

### APPLICATIONS

Ideal for securing PV modules.


## Artigo 9155 A2 Parafusos de rutura

Item 9155 A2  
Shear screws

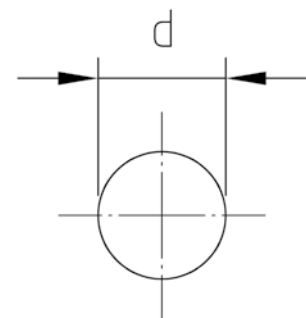
d	l	dk	Ponto rutu Pulloff[Nm]	Tamanho Drive size	Número de artigo Item Number	
8	20	13	18-25	SW 6	915528 20	100
	25	13	18-25	SW 6	915528 25	100
	30	13	18-25	SW 6	915528 30	100
	35	13	18-25	SW 6	915528 35	100
	40	13	18-25	SW 6	915528 40	100
	45	13	18-25	SW 6	915528 45	100
	50	13	18-25	SW 6	915528 50	100

## DIN 5401 A2 Esferas

DIN 5401 A2  
Security balls

d	Tamanho Drive size	Número de artigo Item Number	
5	TX40	540125	1000
6,35	SW 6	540126	500

## DIN 5401 A2



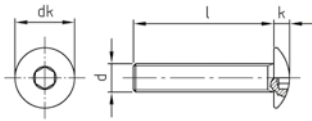
### UTILIZAÇÕES

Para cobrir parafusos com sexta-  
vado interior p. ex. DIN 912/dente de  
bloqueio

### APPLICATIONS

For driving into hexagonal socket  
head screws e.g. DIN 912 / locking  
tooth

## Art. 9020 A2



### UTILIZAÇÕES

Ideal para aparafusamentos na construção de cercas como p. ex. cercas industriais e de segurança.

### APPLICATIONS

Ideal for screw in fence construction such as industrial, and security fencing.

## Artigo 9020 A2 Parafusos semelhantes a ISO 7380 com rosca total

Item 9020 A2

Fence-building screws similar ISO 7380 fullthread

d	l	dk	k	Tamanho Drive size	Número de artigo Item Number	
8	40	17	4,4	SW 5,5	902028 40	100
	45	17	4,4	SW 5,5	902028 45	100
	50	17	4,4	SW 5,5	902028 50	100
	60	17	4,4	SW 5,5	902028 60	100

# Allgemeine Verkaufs- und Lieferbedingungen der Schäfer + Peters GmbH (künftig auch als „S + P“ bezeichnet) Stand 10/2022

## I. Geltungsbereich

1. Die nachstehenden Verkaufsbedingungen gelten für alle zwischen dem Käufer und S + P geschlossenen Verträge über die Lieferung von Waren und damit in Verbindung stehenden Leistungen (wie z.B. Beratungsleistungen oder Auskünfte), soweit es sich bei dem Käufer um ein Unternehmen, eine juristische Person des öffentlichen Rechts oder ein öffentlich-rechtliches Sondervermögen handelt. Aufträge werden ausschließlich auf der Grundlage nachfolgender Bedingungen ausgeführt. Das Angebot, die Angebotsannahme, die Auftragsbestätigung sowie der Verkauf jeglicher Produkte unterliegen den vorliegenden Bedingungen. Entgegenstehende oder abweichende Bedingungen des Käufers erkennen wir nicht an, es sei denn, wir hätten ausdrücklich ihrer Geltung zugestimmt. Dieses Zustimmungserfordernis gilt in jedem Fall, insbesondere auch dann, wenn wir in Kenntnis entgegenstehender oder abweichender Bedingungen des Käufers die Bestellung des Käufers vorbehaltlos ausführen.
2. In den Verträgen sind alle Vereinbarungen, die zwischen dem Käufer und S + P zur Ausführung der Kaufverträge bis zum Zeitpunkt des jeweiligen Vertragsschlusses getroffen wurden, in Textform niedergelegt. Die Wirksamkeit nachträglich im Einzelfall getroffener Individualvereinbarungen bleibt unberührt.
3. Soweit S + P und der Käufer eine Rahmenvereinbarung getroffen haben, gelten diese Allgemeinen Verkaufsbedingungen sowohl für diese Rahmenvereinbarung als auch für den einzelnen Lieferungs- bzw. Kaufauftrag.
4. Die Allgemeinen Verkaufsbedingungen gelten auch für alle künftigen Geschäftsbeziehungen, auch wenn sie nicht noch einmal ausdrücklich vereinbart werden.

## II. Angebot und Vertragsschluss

1. Eine Bestellung des Käufers, welche als rechtsverbindliches Angebot zum Abschluss eines Kaufvertrages zu qualifizieren ist, können wir innerhalb von zwei Wochen nach unserer Wahl durch Übersendung einer Auftragsbestätigung oder durch vorbehaltlose Erbringung der bestellten Lieferungen oder Leistungen annehmen.
2. Unsere Angebote sind freibleibend und unverbindlich, es sei denn, dass wir diese ausdrücklich als verbindlich bezeichnet haben. Angaben über unsere Waren (insbesondere technische Daten, Maße, Leistungs- und Verbrauchsdaten sowie die Beschreibungen in den jeweiligen Produktinformationen oder Werbematerialien u.a.) sind nur ungefähr und annähernd maßgeblich, soweit nicht die Verwendbarkeit zum vertraglich vorgesehenen Zweck eine genaue Übereinstimmung voraussetzt; sie sind keine garantierte Beschaffenheit, es sei denn, die Garantie erfolgt ausdrücklich und in Textform.
3. An allen Abbildungen, Kalkulationen, Zeichnungen sowie anderen Unterlagen behalten wir uns unsere Eigentums-, Urheber- sowie sonstige Schutzrechte vor. Der Käufer darf diese Gegenstände, unabhängig davon, ob wir sie als vertraulich gekennzeichnet haben, nur mit unserer Einwilligung in Textform als solche oder inhaltlich an Dritte weitergeben, sie bekannt geben, selbst oder durch Dritte nutzen oder vervielfältigen.
4. Angaben zu aktuellen Lagerbeständen sind stets unverbindlich. Werden Bestände dem Kunden mitgeteilt, so handelt es sich hierbei um speziell für Kunden- oder Absatzgruppen vorgehaltene Bestände, die nicht mit dem tatsächlichen Bestand identisch sein müssen.

## III. Zahlungsbedingungen

1. Unsere Preise gelten für den in den Auftragsbestätigungen aufgeführten Leistungs- und Lieferumfang. Mehr- oder Sonderleistungen werden gesondert berechnet. Die Preise gelten ab Werk Öhringen zuzüglich Verpackung, Zoll, Versicherung und im Einzelfall zusätzlich anfallender Abgaben, wenn nichts anderes festgelegt wurde. In unseren Preisen ist die gesetzliche Mehrwertsteuer nicht eingeschlossen. Diese werden wir in der gesetzlichen Höhe am Tage der Rechnungsstellung in der Rechnung gesondert ausweisen.
2. Soweit nicht abweichend vereinbart, sind Rechnungen innerhalb von 30 Tagen ab Rechnungsdatum und Lieferung ohne Abzug zur Zahlung fällig. Bei Zahlungen innerhalb von 10 Tagen ab Rechnungsdatum, gewähren wir Skonto von 2%, es sei denn der Käufer befindet sich mit weiteren Zahlungsverpflichtungen uns gegenüber im Zahlungsverzug. Eine Zahlung gilt erst dann als erfolgt, wenn wir über den Betrag verfügen können. Im Falle von Scheckzahlungen gilt die Zahlung erst als erfolgt, wenn der Scheck eingelöst wird.
3. Zahlt der Käufer nicht innerhalb der vorgenannten Frist, so gerät er in Zahlungsverzug, ohne dass es einer erneuten Zahlungsaufforderung bedarf. Im Falle des Zahlungsverzugs ist der Kaufpreis zu dem für Unternehmer gesetzlich geltenden Verzugszinssatz zu verzinsen. Weitergehende Ansprüche bleiben vorbehalten. Leistet der Käufer auch auf eine nochmalige Zahlungsaufforderung nicht, so sind wir dazu berechtigt, alle gegenüber dem Käufer bestehenden Verbindlichkeiten, insbesondere auch gestundete oder in Raten zu zahlende Beträge, sofort fällig zu stellen und etwaige weitere Lieferungen zu versagen.
4. Der Käufer ist zur Aufrechnung und/oder Zurückbehaltung nur berechtigt, wenn die Gegenforderungen rechtskräftig festgestellt sind, von uns anerkannt wurden, unstreitig sind oder wenn die Gegenforderungen aus demselben konkreten Vertragsverhältnis wie die Hauptforderung herrühren und zu dieser in einem Verhältnissverhältnis stehen.

5. Soweit S + P dem Käufer Ratenzahlung gewährt hat, wird der noch bestehende Restbetrag dann insgesamt zur Zahlung fällig, wenn der Käufer mit der Zahlung einer Rate länger als 8 Tage in Verzug gerät.
6. Preisänderungen sind zulässig, wenn zwischen Vertragsabschluss und vereinbartem Liefertermin mehr als vier Monate vergangen sind und die Preisänderung auf eine aktuelle Kostensteigerung zurückzuführen ist, welche wir nicht zu vertreten haben. Eine Kostensteigerung liegt vor, wenn sich bis zur Lieferung die Löhne, die Materialkosten, die Transportkosten, Transportnebenkosten oder die Vertriebskosten erhöhen. Dasselbe gilt, wenn sich Zölle erhöhen bzw. ein Zoll eingeführt wird oder sich Kostenänderungen aufgrund von Preiserhöhungen von Vorlieferanten oder wegen Wechselkursschwankungen ergeben. S + P ist in diesen Fällen berechtigt, den Preis angemessen entsprechend den Kostensteigerungen zu erhöhen.

## IV. Liefer- und Leistungszeit, Höhere Gewalt, Haftung bei Lieferverzug

1. Liefertermine oder Fristen, die nicht ausdrücklich als verbindlich vereinbart oder ausdrücklich verbindlich von uns zugesagt worden sind, sind ausschließlich unverbindliche Angaben. Sie gelten nur annäherungsweise und beschreiben den voraussichtlichen Liefertermin. Hiervon abweichende Vereinbarungen oder Zusagen über eine verbindliche Lieferzeit müssen ausdrücklich und in Textform erfolgen. Die Lieferzeit beginnt erst dann zu laufen, wenn der Käufer die seinerseits geschuldeten Mitwirkungshandlungen ordnungsgemäß und vollständig erbracht hat.
2. Erhalten wir aus von uns nicht zu vertretenden Gründen Lieferungen oder Leistungen unserer Untertierlieferanten oder von Subunternehmern trotz ordnungsgemäßer Eindeckung nicht, nicht richtig oder nicht rechtzeitig oder treten Ereignisse höherer Gewalt ein, so werden wir unseren Kunden rechtzeitig in Textform informieren und uns nach besten Kräften bemühen, die Liefer- oder Leistungsstörung oder die höhere Gewalt zu beheben und in ihren Auswirkungen soweit wie möglich zu beschränken. In diesem Fall sind wir berechtigt, die Lieferung bzw. Leistung um die Dauer einer nur vorübergehenden Behinderung herauszuschieben oder im Falle einer wesentlichen Behinderung von nicht nur vorübergehender Dauer wegen des noch nicht erfüllten Teils vom Vertrag ganz oder teilweise zurückzutreten, soweit wir unserer vorstehenden Informationspflicht nachgekommen sind und nicht das Beschaffungsrisiko bzw. Herstellungsrisiko übernommen haben. Der höheren Gewalt stehen gleich sonstige bei Vertragsabschluss nicht vorhersehbare Ereignisse wie rechtmäßige Streiks oder Aussperrungen, behördliche Eingriffe, Energie- und Rohstoffknappheit, unverschuldete Transportengpässe, unverschuldete Betriebsbehinderungen zum Beispiel durch Feuer, Wasser und Maschinenschäden, unerwartet auftretende Pandemien oder Epidemien, kriegs- und kriegsähnliche Handlungen, Wirtschaftssanktionen und alle sonstigen Behinderungen, die bei objektiver Betrachtungsweise nicht von uns schuldhaft herbeigeführt worden sind. Verzögert sich die Lieferung oder Leistung in Folge eines der vorstehend in Satz 1 und 3 genannten Fälle um mehr als einen Monat, so sind sowohl wir als auch der Kunde - unbeschadet des Fristsetzungserfordernisses für den Kunden und unter Ausschluss jeglicher Schadensersatzansprüche - berechtigt, hinsichtlich der von den Lieferstörungen betroffenen Menge vom Vertrag zurückzutreten. Zum Rücktritt vom gesamten Vertrag ist der Kunde berechtigt, wenn ihm die Annahme einer Teillieferung unzumutbar ist.
3. In jedem Falle geraten wir erst nach Ablauf einer vom Kunden gesetzten angemessenen Nachfrist in Lieferverzug, es sei denn, es handelt sich um ein Fixgeschäft im Sinne von § 286 Abs. 2 Nr. 4 BGB oder von § 376 HGB.
4. Unsere gesetzlichen Rechte, insbesondere bei einem Ausschluss der Leistungspflicht (z. B. aufgrund Unmöglichkeit oder Unzumutbarkeit der Leistung und/oder Nacherfüllung), bleiben unberührt. Schadensersatzansprüche aus Lieferverzug sind ausgeschlossen, soweit sie nicht auf einem vorsätzlichen, arglistigen oder grob fahrlässigen Handeln unsererseits oder unserer Erfüllungsgehilfen oder auf der schuldhaften Verletzung wesentlicher Vertragspflichten beruhen. Wesentlich sind diejenigen Vertragspflichten, die vertragswesentliche Rechtspositionen des Kunden schützen, die ihm der Vertrag nach seinem Inhalt und Zweck gerade zu gewähren hat; wesentlich sind ferner solche Vertragspflichten, deren Erfüllung die ordnungsgemäße Durchführung des Vertrages überhaupt erst ermöglicht und auf deren Einhaltung der Vertragspartner regelmäßig vertraut und auch vertrauen darf. Der Haftungsausschluss gilt nicht für Schäden, welche aus der Verletzung des Lebens, des Körpers oder der Gesundheit herrühren oder Garantien betreffen. Im Falle einer einfach fahrlässigen Verletzung einer wesentlichen Vertragspflicht haften wir allerdings nur für den nach Art des Vertragsschlusses vorhersehbaren, vertragstypischen, unmittelbaren Durchschnittsschaden.
5. Wir sind zu Teillieferungen und Teilleistungen nur berechtigt, wenn - die Teillieferung oder Teilleistung für den Kunden im Rahmen des vertraglichen Bestimmungszwecks verwendbar ist, - die Lieferung der restlichen bestellten Waren bzw. die Erbringung der restlichen beauftragten Leistungen sichergestellt ist und - dem Kunden hierdurch kein erheblicher Mehraufwand oder zusätzliche Kosten entstehen (es sei denn, wir erklären uns zur Übernahme dieser Kosten bereit).
6. Kommt der Käufer in Annahmeverzug, so sind wir berechtigt, Ersatz des entstehenden Schadens und etwaiger Mehraufwendungen zu verlangen. Gleiches gilt, wenn der Käufer Mitwirkungspflichten schuldhaft verletzt.

## V. Erfüllungsort, Gefahrübergang, Versand, Verpackung

1. Die Lieferung erfolgt ab Lager in Ohringen, wo auch der Erfüllungsort für die Lieferung ist. Dies gilt auch für den Fall der Nacherfüllung. Auf Verlangen und Kosten des Käufers wird die Ware an einen anderen Bestimmungsort versandt (Versendungskauf).

2. Die Gefahr des zufälligen Untergangs und der zufälligen Verschlechterung der Ware geht spätestens mit der Übergabe auf den Käufer über. Beim Versendungskauf geht jedoch die Gefahr des zufälligen Untergangs und der zufälligen Verschlechterung der Ware sowie die Verzögerungsgefahr bereits mit Auslieferung der Ware an den Spediteur, den Frachtführer oder der sonst zur Ausführung der Versendung bestimmten Person oder Anstalt über. Der Übergabe steht es gleich, wenn der Käufer im Verzug der Annahme ist.

3. Wir werden uns bemühen, hinsichtlich Versandart und Versandweg Wünsche und Interessen des Käufers zu berücksichtigen; dadurch bedingte Mehrkosten - auch bei vereinbarter Frachtfreilieferung - gehen zu Lasten des Käufers.

4. Wir nehmen Transport- und alle sonstigen Verpackungen nach Maßgabe der Verpackungsverordnung nicht zurück; ausgenommen sind Paletten. Der Käufer hat für die Entsorgung der Verpackung, welche in sein Eigentum übergeht, auf eigene Kosten zu sorgen.

5. Wird der Versand auf Wunsch oder wegen Verschuldens des Käufers verzögert, so lagern wir die Waren auf Kosten und Gefahr des Käufers. In diesem Fall steht die Anzeige der Versandbereitschaft dem Versand gleich.

6. Auf Wunsch und Kosten des Käufers werden wir die Lieferung durch eine Transportversicherung absichern. Hierzu bedarf es einer ausdrücklichen Weisung des Käufers in Textform.

## VI. Gewährleistung / Haftungsbegrenzung / Ersatz vergeblicher Aufwendungen

1. Mängelansprüche des Käufers bestehen nur, wenn der Käufer seinen gesetzlich geschuldeten Untersuchungs- und Rügepflichten, insbesondere gemäß § 377 HGB, ordnungsgemäß nachgekommen ist. Unbeschadet der gesetzlichen Anforderungen an eine ordnungsgemäße Untersuchung hat der Käufer die gelieferte Ware nach Ablieferung bei ihm oder dem von ihm bestimmten Dritten sorgfältig und in zumutbarem Umfang – gegebenenfalls stichprobeweise – mindestens auf Maßhaltigkeit, Material, Gewicht und Oberflächenbeschaffenheit zu untersuchen. Dabei erkennbar werdende Mängel sind uns innerhalb einer Woche nach Eingang der Ware in Textform anzuzeigen. Geschieht dies nicht, gilt die Ware als genehmigt. Versteckte Mängel sind S + P unverzüglich in Textform nach ihrer Entdeckung mitzuteilen. Eine ordnungsgemäße Mängelrüge hat die Bereitschaft des Käufers erkennen zu lassen, den beanstandeten Liefergegenstand auf Verlangen von S + P frachtfrei zurückzusenden. Bei berechtigter Mängelrüge vergütet S + P die Kosten des günstigsten Versandweges; dies gilt nicht, soweit die Kosten sich erhöhen, weil der Liefergegenstand sich an einem anderen Ort als dem Ort des bestimmungsgemäßen Gebrauchs befindet. Versäumt der Käufer die ordnungsgemäße Untersuchung und/oder Mängelanzeige, ist unsere Haftung für den nicht bzw. nicht rechtzeitig oder nicht ordnungsgemäß angezeigten Mangel nach den gesetzlichen Vorschriften ausgeschlossen. Bei einer zum Einbau, zur Anbringung oder Installation bestimmten Ware gilt dies auch dann, wenn der Mangel infolge der Verletzung einer dieser Pflichten erst nach der entsprechenden Verarbeitung offenbar wurde; in diesem Fall bestehen insbesondere keine Ansprüche des Käufers auf Ersatz entsprechender Kosten (Aus- und Einbaukosten).

2. Für die Rechte des Käufers bei Sach- und Rechtsmängeln (einschließlich Falsch- und Minderlieferung sowie unsachgemäßer Montage oder mangelhafter Montageanleitung) gelten die gesetzlichen Vorschriften, soweit nicht vorstehend oder nachfolgend ein anderes bestimmt ist.

3. Grundlage unserer Mängelhaftung ist vor allem die über die Beschaffenheit und die vorausgesetzte Verwendung der Ware (einschließlich Zubehör und Anleitungen) getroffene Vereinbarung. Als Beschaffenheitsvereinbarung in diesem Sinne gelten alle Produktbeschreibungen und Herstellerangaben, die Gegenstand des einzelnen Vertrages sind oder von uns (insbesondere in Katalogen oder auf unserer Internet-Homepage) zum Zeitpunkt des Vertragsschlusses öffentlich bekannt gemacht waren. Soweit die Beschaffenheit nicht vereinbart wurde, ist nach der gesetzlichen Regelung zu beurteilen, ob ein Mangel vorliegt oder nicht (§ 434 Abs. 3 BGB). Öffentliche Äußerungen des Herstellers oder in seinem Auftrag insbesondere in der Werbung oder auf dem Etikett der Ware gehen dabei Äußerungen sonstiger Dritter vor.

4. Unabhängig von den vorstehenden und nachstehenden Regelungen gelten die gesetzlichen Vorschriften in jedem Fall

- bei vorsätzlichem Handeln unsererseits oder arglistigem Verschweigen eines Mangels;

- bei Schäden aus der Verletzung des Lebens, des Körpers oder der Gesundheit;

- bei Ansprüchen nach dem Produkthaftungsgesetz;

- soweit von uns übernommene Garantien den abweichenden Regelungen entgegenstehen.

In allen Fällen unberührt bleiben die gesetzlichen Sondervorschriften zum Aufwendungsersatz bei Endlieferung der neu hergestellten Ware an einen Verbraucher (Lieferantenregress gem. §§ 478, 445a, 445b bzw. §§ 445c, 327 Abs. 5, 327u BGB), sofern nicht, z.B. im Rahmen einer Qualitätssicherungsverein-

barung, ein gleichwertiger Ausgleich vereinbart wurde.

5. Im Übrigen gelten für die Rechte des Käufers bei Sach- und Rechtsmängeln folgende Besonderheiten:

a) Haftung auf Schadensersatz und Ersatz vergeblicher Aufwendungen  
Schadensersatzansprüche wegen Rechts- und Sachmängeln sind ausgeschlossen, soweit sie nicht

- auf einem grob fahrlässigen Handeln unsererseits oder unserer Erfüllungsgehilfen oder

- auf der schuldhaften Verletzung wesentlicher Vertragspflichten beruhen. Wesentlich sind diejenigen Vertragspflichten, die vertragswesentliche Rechtspositionen des Kunden schützen, die ihm der Vertrag nach seinem Inhalt und Zweck gerade zu gewähren hat; wesentlich sind ferner solche Vertragspflichten, deren Erfüllung die ordnungsgemäße Durchführung des Vertrages überhaupt erst ermöglicht und auf deren Einhaltung der Vertragspartner regelmäßig vertraut und auch vertrauen darf.

Im Falle einer einfach fahrlässigen Verletzung einer wesentlichen Vertragspflicht haften wir nur für den nach Art des Vertragsschlusses vorhersehbaren, typischerweise eintretenden Schaden.

Ansprüche auf Ersatz vergeblicher Aufwendungen nach § 284 BGB sind dann und insoweit abbedungen, als nach dem zuvor Gesagten ein Anspruch auf Ersatz des Schadens statt der Leistung in wirksamer Weise freigezeichnet worden ist.

b) Nacherfüllung

- Ist die gelieferte Sache mangelhaft, können wir zunächst wählen, ob wir Nacherfüllung durch Beseitigung des Mangels (Nachbesserung) oder durch Lieferung einer mangelfreien Sache (Ersatzlieferung) leisten. Ist die von uns gewählte Art der Nacherfüllung im Einzelfall für den Käufer unzumutbar, kann er sie ablehnen. Unser Recht, die Nacherfüllung unter den gesetzlichen Voraussetzungen zu verweigern, bleibt unberührt.

- Wurde die von S + P gelieferte Ware beim Käufer selbst bereits in eine andere Sache eingebaut oder an eine andere Sache angebracht, hat uns der Käufer, soweit dies für ihn zumutbar ist, zum Zwecke der Nacherfüllung Gelegenheit zu geben, die Ware selbst zu entfernen und die nachgebesserte oder nachgelieferte Ware selbst erneut einzubauen bzw. anzubringen und uns hierzu eine angemessene Frist zu bestimmen. Dies gilt unabhängig davon, ob wir ursprünglich zusätzlich zur Lieferung auch zum Einbau der Ware oder zu deren Montage verpflichtet waren; durch dieses Vorgehen wird der Einbau oder die Montage der gelieferten Ware auch nicht zum Teil der Nacherfüllung.

- Hat der Käufer die durch S + P gelieferte Ware bereits weiterverkauft, hat der Käufer gegenüber S + P auch dann eine vorherige und angemessene Frist zur Nacherfüllung zu setzen, wenn der Käufer die Ware von seinem Abnehmer in Folge der Mangelhaftigkeit zurücknehmen musste oder der Abnehmer des Käufers den Kaufpreis gemindert hat.

- Unser Recht, die Nacherfüllung unter den gesetzlichen Voraussetzungen zu verweigern, bleibt unberührt.

c) Ersatz von Aufwendungen zur Nacherfüllung

- Der Käufer ist erst berechtigt, bei ihm selbst zum Zwecke der Nacherfüllung erforderlich werdende Aufwendungen, insbesondere zum Aus- und Wiedereinbau der Sache bzw. zum Entfernen und Wiederanbringen derselben, unter den weiteren gesetzlichen Voraussetzungen von S + P ersetzt zu verlangen, wenn die vom Käufer hierzu bestimmte angemessene Frist fruchtlos verstrichen ist.

- Musste die durch S + P gelieferte Sache im Falle der Weiterveräußerung durch den Käufer zum Zwecke der Nacherfüllung bei dessen direktem oder einem weiteren Abnehmer in der Lieferkette aus- und wiedereingebaut bzw. entfernt und wiederangebracht werden, ist S + P dem Käufer gegenüber nicht zum Ersatz der hierfür angefallenen Aufwendungen verpflichtet.

- Stellt sich heraus, dass das Mangelbeseitigungsverlangen des Käufers unberechtigt war, kann S + P von ihm die entstandenen Kosten (insbesondere Prüf-, Ein- und Ausbau- sowie Transportkosten) ersetzt verlangen, es sei denn, die fehlende Mangelhaftigkeit war für den Käufer nicht erkennbar.

Die vorstehend unter lit. b) und c) genannten Besonderheiten gelten nicht im Falle von Aufwendungsersatz bei Endlieferung neu hergestellter Ware an einen Verbraucher (Lieferantenregress gem. §§ 478, 445a, 445b bzw. §§ 445c, 327 Abs. 5, 327u BGB), sofern nicht, z.B. im Rahmen einer Qualitätssicherungsvereinbarung, ein gleichwertiger Ausgleich vereinbart wurde.

6. In den Fällen der Lieferung von neu hergestellter Ware durch S + P, die am Ende der Lieferkette in unverarbeitetem Zustand durch einen Unternehmer an einen Verbraucher verkauft werden, auch wenn letzterer sie weiterverarbeitet hat, gelten für die Rechte des Käufers weiter folgende Besonderheiten:

- Die Ansprüche des Käufers aus § 478 BGB sind ausgeschlossen, soweit es sich um einen Mangel aufgrund von Werbeaussagen oder sonstigen vertraglichen Vereinbarungen handelt, die nicht von S + P herrühren, oder wenn der Käufer, sein unmittelbarer oder ein weiterer Abnehmer in der Lieferkette gegenüber dem Endverbraucher eine besondere Garantie abgegeben hat.

- Diese Ansprüche sind ebenfalls ausgeschlossen, wenn der Käufer, sein unmittelbarer oder ein weiterer Abnehmer in der Lieferkette selbst nicht aufgrund der gesetzlichen Regelungen zur Ausübung der Gewährleistungsrechte gegenüber dem Endverbraucher verpflichtet war oder diese Rüge gegenüber einem ihm gestellten Anspruch nicht vorgenommen hat. Dies gilt auch, wenn der Käufer, sein unmittelbarer oder ein weiterer Abnehmer in der Lieferkette gegenüber dem Endverbraucher Gewährleistungen übernommen hat, die über

das gesetzliche Maß hinausgehen.

- Die Ansprüche des Käufers aus § 478 BGB sind insgesamt ausgeschlossen, wenn der Käufer seinen gesetzlich geschuldeten Untersuchungs- und Rügepflichten nach näherer Maßgabe des Abschnitts VI Ziff. 1 nicht ordnungsgemäß nachgekommen ist.

#### VII. Sonstige Haftung

Schadensersatzansprüche wegen Verletzung einer außervertraglichen Pflicht (Haftung aus Delikt) oder wegen Verschuldens bei oder im Vorfeld des Vertragsschlusses (culpa in contrahendo) sowie aus sonstigen Rechtsgründen, insbesondere der Verletzung allgemeiner Rücksichtnahmepflichten (§ 241 Abs. 2 BGB), der fehlerhaften oder unterlassenen Ausführung von vor oder nach Vertragsschluss erfolgten Vorschlägen oder Beratungen oder der Verletzung sonstiger Vertragspflichten (§ 280 Abs. 1 BGB), soweit es sich nicht bereits um Gewährleistungsansprüche handelt, sind ausgeschlossen, soweit sie nicht auf ein vorsätzliches, arglistiges oder grob fahrlässiges Handeln unsererseits oder unserer Erfüllungsgehilfen oder auf der schuldhaften Verletzung wesentlicher Vertragspflichten beruhen.

Der Haftungsausschluss gilt nicht für Schäden, welche aus der Verletzung des Lebens, des Körpers oder der Gesundheit herrühren oder Garantien sowie Ansprüche aus dem Produkthaftungsgesetz betreffen.

Im Falle einer einfach fahrlässigen Verletzung einer wesentlichen Vertragspflicht haften wir allerdings nur für den nach Art des Vertragsschlusses vorhersehbaren, typischerweise eintretenden Schaden.

#### VIII. Verjährung

1. Abweichend von § 438 Abs. 1 Nr. 3 BGB beträgt die allgemeine Verjährungsfrist für Ansprüche aus Sach- und Rechtsmängeln einschließlich des Anspruchs auf Aufwendungsersatz in der Lieferkette nach § 445a Abs. 1, Abs. 3 BGB ein Jahr ab Ablieferung. Soweit eine Abnahme vereinbart ist, beginnt die Verjährung mit der Abnahme.

2. Handelt es sich bei der Ware jedoch um ein Bauwerk oder eine Sache, die entsprechend ihrer üblichen Verwendungsweise für ein Bauwerk verwendet worden ist und dessen Mangelhaftigkeit verursacht hat, beträgt die Verjährungsfrist gemäß der gesetzlichen Regelung fünf Jahre ab Ablieferung (§ 438 Abs. 1 Nr. 2 BGB). Unberührt bleiben auch weitere gesetzliche Sonderregelungen zur Verjährung (insbes. § 438 Abs. 1 Nr. 1, Abs. 3, §§ 444, 445b BGB).

3. Handelt es sich bei der Ware um solche Gegenstände, die für ein Bauwerk, aber auch für andere Dienst- und Werkleistungen verwendet werden können, verbleibt es bei der Verjährungsfrist gem. Ziff. 1, es sei denn, wenn der Einbau der Ware für das Bauwerk von wesentlicher Bedeutung war; dann gilt die Verjährungsfrist gem. Ziff. 2.

4. Abweichend von § 445b Abs. 2 S. 2 BGB endet im Falle der Weiterveräußerung der von S + P gelieferten Ware durch den Käufer gegenüber S + P die Ablaufhemmung hinsichtlich der Verjährung von Mängelansprüchen des Käufers drei Jahre nach Ablieferung der Ware.

5. Die vorstehenden Verjährungsfristen des Kaufrechts gelten auch für vertragliche und außervertragliche Schadensersatzansprüche des Käufers, die auf einem Mangel der Ware beruhen, es sei denn die Anwendung der regelmäßigen gesetzlichen Verjährung (§§ 195, 199 BGB) würde im Einzelfall zu einer kürzeren Verjährung führen. Schadensersatzansprüche des Käufers aus Vorsatz, grober Fahrlässigkeit, der Verletzung von Leben, Körper oder Gesundheit sowie aus Garantien oder dem Produkthaftungsgesetz verjähren jedoch ausschließlich nach den gesetzlichen Verjährungsfristen. Die Verkürzung der Verjährungsfrist bzw. der Ablaufhemmung gilt auch dann nicht, wenn es sich um einen Fall der Lieferung von Waren durch S + P handelt, die am Ende der Lieferkette in unverarbeitetem Zustand durch einen Unternehmer an einen Verbraucher verkauft werden (Rückgriff des Unternehmers - §§ 478, 479 BGB).

#### IX. Eigentumsvorbehalt

1. Die von uns gelieferte Ware bleibt bis zur Erfüllung sämtlicher bestehender oder künftig entstehender Forderungen, die uns aus irgendeinem Rechtsgrund aus der laufenden Geschäftsbeziehung und/oder dem konkreten Kaufvertrag gegenüber dem Käufer zustehen, unser Eigentum. Im Falle des vertragswidrigen Verhaltens des Käufers, z.B. Zahlungsverzug, haben wir nach vorheriger Setzung einer angemessenen Frist das Recht, die Vorbehaltsware zurückzunehmen. Nehmen wir die Vorbehaltsware zurück, stellt dies einen Rücktritt vom Vertrag dar. Pfänden wir die Vorbehaltsware, ist dies ein Rücktritt vom Vertrag. Wir sind berechtigt, die Vorbehaltsware nach der Rücknahme zu verwerten. Nach Abzug eines angemessenen Betrages für die Verwertungskosten, ist der Verwertungserlös mit den uns vom Käufer geschuldeten Beträgen zu verrechnen.

2. Der Käufer hat die Vorbehaltsware pfleglich zu behandeln und diese auf seine Kosten gegen Feuer-, Wasser- und Diebstahlschäden ausreichend zum Neuwert zu versichern. Wartungs- und Inspektionsarbeiten, die erforderlich werden, sind vom Käufer auf eigene Kosten rechtzeitig durchzuführen. Der Käufer ist außerdem verpflichtet, auf Verlangen von S + P, uns jederzeit über den Zustand der Ware Auskunft zu geben und den Aufbewahrungsort der Ware mitzuteilen.

3. Der Käufer ist berechtigt, die Vorbehaltsware im ordnungsgemäßen Geschäftsgang zu veräußern und/oder zu verwenden, solange er nicht in

Zahlungsverzug ist. Verpfändungen oder Sicherungsübereignungen sind unzulässig. Die aus dem Weiterverkauf oder einem sonstigen Rechtsgrund (Versicherung, unerlaubte Handlung) bezüglich der Vorbehaltsware entstehenden Forderungen (einschließlich sämtlicher Saldoforderungen aus Kontokorrent) tritt der Käufer bereits jetzt sicherungshalber in vollem Umfang an uns ab; wir nehmen die Abtretung hiermit an. Wir ermächtigen den Käufer widerruflich, die an uns abgetretenen Forderungen für dessen Rechnung im eigenen Namen einzuziehen. Die Einzugsermächtigung kann jederzeit widerrufen werden, wenn der Käufer seinen Zahlungsverpflichtungen nicht ordnungsgemäß nachkommt. Zur Abtretung dieser Forderung ist der Käufer auch nicht zum Zwecke des Forderungseinzugs im Wege des Factoring befugt, es sei denn, es wird gleichzeitig die Verpflichtung des Factors begründet, die Gegenleistung in Höhe der Forderungen solange unmittelbar an uns zu bewirken, als noch Forderungen von uns gegen den Käufer bestehen. Der Käufer ist außerdem verpflichtet, uns von einer Pfändung oder einer anderen Beeinträchtigung durch Dritte unverzüglich zu benachrichtigen.

4. Eine Verarbeitung oder Umbildung der Vorbehaltsware durch den Käufer wird in jedem Fall für uns vorgenommen. Sofern die Vorbehaltsware mit anderen, uns nicht gehörenden Sachen verarbeitet wird, erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes der Vorbehaltsware (Rechnungsendbetrag inklusive der Mehrwertsteuer) zu den anderen verarbeiteten Sachen im Zeitpunkt der Verarbeitung. Im Falle der untrennbaren Vermischung der Vorbehaltsware mit anderen, uns nicht gehörenden Sachen erwerben wir Miteigentum an der neuen Sache im Verhältnis des Wertes der Vorbehaltsware (Rechnungsendbetrag inklusive der Mehrwertsteuer) zu den anderen vermischten Sachen im Zeitpunkt der Vermischung. Ist die Sache des Käufers in Folge der Vermischung als Hauptsache anzusehen, sind der Käufer und wir uns einig, dass der Käufer uns anteilmäßig Miteigentum an dieser Sache überträgt; die Übertragung nehmen wir hiermit an. Unser so entstandenes Allein- oder Miteigentum an einer Sache verwahrt der Käufer für uns. Für die Durch Verarbeitung oder Umbildung entstehende neue Sache gilt das Gleiche wie für die Vorbehaltsware, allerdings mit der Einschränkung, dass der Käufer Forderungen Dritter lediglich in der Höhe an uns abtrifft, als wir Miteigentum entsprechend dem zuvor Gesagten erworben haben.

5. Bei Zugriffen Dritter auf die Vorbehaltsware, insbesondere Pfändungen, wird der Käufer auf unser Eigentum hinweisen und uns unverzüglich benachrichtigen, damit wir unsere Eigentumsrechte durchsetzen können. Soweit der Dritte nicht in der Lage ist, uns die in diesem Zusammenhang entstehenden gerichtlichen oder außergerichtlichen Kosten zu erstatten, haftet hierfür der Käufer.

6. Wir sind verpflichtet, die uns zustehenden Sicherheiten insoweit freizugeben, als der realisierbare Wert unserer Sicherheiten die zu sichernden Forderungen um mehr als 10 % übersteigt, dabei obliegt uns die Auswahl der freizugebenden Sicherheiten.

#### X. Gerichtsstand, anzuwendendes Recht

1. Ist der Käufer Kaufmann i.S.d. Handelsgesetzbuchs, juristische Person des öffentlichen Rechts oder ein öffentlich-rechtliches Sondervermögen, ist ausschließlich der – auch internationaler – Gerichtsstand für alle sich aus dem Vertragsverhältnis unmittelbar oder mittelbar ergebenden Streitigkeiten Heilbronn, Deutschland. Entsprechendes gilt, wenn der Käufer Unternehmer i.S.v. § 14 BGB ist. Wir sind jedoch in allen Fällen auch berechtigt, Klage am Erfüllungsort der Lieferverpflichtung gem. diesen AVB bzw. einer vorrangigen Individualabrede oder am allgemeinen Gerichtsstand des Käufers zu erheben. Vorrangige gesetzliche Vorschriften, insbesondere zu ausschließlichen Zuständigkeiten, bleiben unberührt. 2. Das Rechtsverhältnis zwischen uns und unseren Kunden oder zwischen uns und Dritten regelt sich ausschließlich nach dem in der Bundesrepublik Deutschland geltenden Recht unter Ausschluss internationalen Einheitsrechts, insbesondere des UN-Kaufrechts.

#### XI. Sonstiges

1. Sollten diese Bestimmungen teilweise rechtsunwirksam oder lückenhaft sein oder werden oder durch eine Sondervereinbarung ausgeschlossen sein, so wird hierdurch die Gültigkeit der übrigen Bestimmungen nicht berührt.

2. Wir weisen darauf hin, dass wir Daten unserer Kunden im Rahmen unserer gegenseitigen Geschäftsbeziehungen nach den geltenden datenschutzrechtlichen Bestimmungen, insbesondere der Europäischen Datenschutz-Grundverordnung und dem Bundesdatenschutzgesetz speichern.

Schäfer + Peters GmbH

# General Terms of Sale and Delivery of Schäfer + Peters GmbH (hereinafter referred to as "S + P") Version 10/2022

## I. Scope of Validity

1. The terms of sale given hereinafter apply to all contracts concluded between the Purchaser and S + P concerning the delivery of goods, provided that the Purchaser is a company, legal entity under public law or special fund under public law. Contracts are executed exclusively on the basis of the following conditions. The quotation, the quotation acceptance and the order confirmation, as well as the sale of any product, are subject to these conditions. We shall not recognise any contradictory or deviating conditions of purchase, unless we have expressly agreed to apply these conditions. This consent requirement shall always apply, particularly if we carry out the Purchaser's order without qualification and in full knowledge of these contradictory or deviating conditions of the Purchaser.
2. In the contracts, all agreements that have been made between the Purchaser and S + P about the execution of the purchasing contracts up to the time of the respective conclusion of the contract are documented in writing. The effectiveness of individual agreements made retroactively in individual cases remains unaffected.
3. If S + P and the Purchaser have arranged a framework agreement, these General Terms of Sale shall apply both to this framework agreement and to the individual delivery or purchase order.
4. The General Terms of Sale shall also apply to all future business relationships, even if these terms are never agreed on expressly.

## II. Offer and Contract Conclusion

1. We can accept an order from the Purchaser which is to be qualified as a legally binding offer for the conclusion of a purchasing contract within two weeks by sending an order confirmation or by rendering the deliveries or services ordered without qualification, with the choice being ours.
2. Our quotations are non-binding, unless we have expressly designated them as binding. Information about our goods (particularly technical data, dimensions, performance and consumption data, as well as the descriptions in the respective product information or advertising materials, etc.) is only approximate and roughly representative, provided that usability for the contractually intended purpose does not require an exact match; this information does not guarantee the condition, unless this guarantee is made expressly and in writing.
3. We retain our property right, copyright and other protective rights on all figures, calculations, drawings and other documents. The Purchaser may only pass on these items, regardless of whether we have marked them as confidential, to third parties in text form as such or in terms of content, disclose them, use them themselves or have them used by third parties or reproduce them with our consent.
4. Information about current warehouse inventory is always non-binding. If inventory is communicated to the customer, this is considered inventory that is specifically reserved for customer or volume groups and does not need to be identical to the actual inventory.

## III. Terms of Payment

1. Our prices apply to the scope of service and delivery indicated in the order confirmations. Additional or special services are billed separately. Prices shall apply ex works in Öhringen, plus packaging, duties, insurance and, in individual cases, additional taxes and duties, if not otherwise specified. The statutory value added tax is not included in our prices. We list this in the invoice separately in the statutory amount on the date the invoice is issued.
2. Unless otherwise agreed, invoices shall be due and payable without deduction within 30 days from the date of invoicing and delivery. We grant a discount of 2% for payments made within 10 days of the date of invoice, unless the Purchaser is in default of payment for other payment obligations towards us. Payment is only considered to have occurred once the funds are available to us. In the case of cheque payments, payment is only considered to have occurred once the cheque has cleared.
3. If the Purchaser does not pay within the defined period, the Purchaser shall be in default of payment, without a new payment request needing to be made. In the case of late payment, interest is to be paid on the purchase price at the legally applicable late payment interest rate for business owners. Further claims shall remain unaffected. If the Purchaser does not render payment upon further request, we are entitled to make all existing obligations of the Purchaser due and payable, in particular also deferred or instalment payments, and to deny any further deliveries.
4. The Purchaser shall be authorised to offset and/or withhold payment only if the counter-claims have been determined as legally valid, have been recognised by us, are indisputable or if the counter-claims arise from the same specific contractual relationship as the principal claim and are in a mutual relationship with this claim.
5. If S + P has granted instalment payments for the Purchaser, the remaining amount shall be due and payable in full if the Purchaser is in default of payment of an instalment by more than 8 days.
6. Price changes are permitted if more than four months have passed between the contract conclusion and the agreed delivery date and if the price change can be traced back to a recent cost increase for which we are not liable. A cost increase has occurred if wages, material costs, transport costs ancillary transport costs or sales costs increase before delivery. The same applies if duties

increase or a duty is introduced, or cost changes result due to price increases of upstream suppliers or due to exchange rate fluctuations. In these cases, S + P is authorised to increase the price appropriately in accordance with the cost increases.

## IV. Delivery and Service Period, Liability in Case of Late Delivery

1. Delivery dates or deadlines that are not agreed upon or promised by us expressly as binding are exclusively non-binding specifications. They shall only be considered approximations and describe a likely delivery date. Agreements or promises about a binding delivery date deviating from this must be made expressly and in writing. The delivery period only begins when the Purchaser has properly and completely performed those cooperation activities that are obligatory on its part.
  2. If we do not receive deliveries or services from our sub-suppliers or sub-contractors, or do not receive correct or timely deliveries or services for reasons for which we are not responsible despite proper coverage, or if an event of force majeure occurs, we shall inform our customer in writing in a timely manner. In this case, we are authorised to extend the delivery or service period by the duration of the temporary hindrance or, in the case of a significant hindrance whose duration is not temporary, to withdraw from the part of the contract that has not yet been fulfilled, entirely or in part, if we have performed the above obligation of notification and have not assumed the procurement risk or production risk. Force majeure includes any other unforeseeable event upon contract conclusion, such as legal strikes or lockouts, government interventions, energy and resource shortages, transport bottlenecks or operational disturbances through no fault of our own, such as those due to fire, water and machine damage, unexpectedly occurring pandemics or epidemics, acts of war and war-like acts, economic sanctions and all other hindrances for which we objectively cannot be held responsible. If the delivery or service is delayed by more than one month as a result of one of the cases named above in Clauses 1 and 3, both we and the customer regardless of the deadline requirement for the customer and excluding any claims for damages<sup>2</sup> are authorised to withdraw from the contract with regard to the volume affected by the delivery disturbances. The customer is authorised to withdraw from the entire contract if a partial delivery is unacceptable for the customer.
  3. In any case, we shall enter into default of delivery only after an appropriate grace period set by the customer has passed, unless time is of the essence for the transaction as defined by § 286 para. 2 No. 4 of the German Civil Code (BGB) or § 376 of the German Commercial Code (HGB).
  4. Our legal rights, particularly in the case of an exclusion of the duty to perform (e.g. due to impossibility or unreasonableness of performance and/or supplementary performance), remain unaffected. Claims for damages due to delayed delivery are excluded, provided that they are not based on any intentional or grossly negligent actions on our part or on the part of our subcontractors, or based on the culpable violation of essential contractual duties. Essential contractual duties are any that protect the essential legal positions of the customer, the guarantee of which is the very essence and purpose of the contract; these also include those contractual duties whose performance enables the proper completion of the contract in the first place and those whose observance the contract partner frequently trusts and may reasonably trust. The exclusion of liability does not apply to damages caused by injury to life, limb and health or damages affecting warranties.
- In the case of a simple negligent violation of an essential contractual duty, however, we shall only accept liability for typical, immediate, average damage foreseeable at the time that the contract was concluded.
5. We are only authorised to perform partial deliveries and partial services if:
    - the partial delivery or partial service is usable for the customer as part of the intended purpose of the contract,
    - the delivery of the remaining ordered goods or the rendering of the remaining commissioned services is ensured, and
    - this does not cause any significant added outlay or extra costs for the customer (unless we have agreed to accept these costs).
  6. If the Purchaser is in default of acceptance, we are then entitled to demand compensation for accrued damages and any extra expenses. The same applies if the Purchaser culpably violates its cooperation duties.

## V. Place of Fulfilment, Transfer of Risk, Shipping, Packaging

1. Delivery shall be ex warehouse in Öhringen, which is also the place of performance for the delivery. This shall also apply in the event of subsequent performance. At the request and expense of the Purchaser, the goods will be shipped to another destination (sale by delivery to a place other than the place of performance).
2. The risk of accidental loss and accidental deterioration of the goods shall transfer to the Purchaser upon handover at the latest. In the case of sales shipment, however, the risk of accidental destruction and accidental deterioration of the goods, as well as the risk of delay, passes to the shipper, freight carrier or other person or institution assigned to complete the shipment upon handover of the goods for shipment. Handover is still considered to have taken place if the Purchaser is in default of acceptance.
3. With regard to the shipment method and shipping route, we shall try to take into consideration the wishes and interests of the Purchaser; added costs cau-

sed by this – even in the case of agreed free delivery – shall be borne by the Purchaser.

4. We do not take back transport packaging or any other packaging in accordance with the packaging ordinance; this excludes pallets. The Purchaser shall take care of disposal of the packaging, which becomes its property, at the Purchaser's own expense.

5. If the shipping is delayed on the request of or due to fault of the Purchaser, we shall store the goods at the Purchaser's risk and expense. In this case, the notice of readiness to ship shall be deemed equivalent to shipment.

6. On request and at the expense of the Purchaser, we shall insure the delivery using transport insurance. This requires an instruction from the Purchaser given expressly and in writing.

#### **VI. Warranty/Limitation of Liability/Compensation for Wasted Expenditures**

1. There shall only be claims for defects from the Purchaser if the Purchaser has properly fulfilled its legally required examination and notification duties, particularly in accordance with § 377 HGB. Regardless of the legal requirements for proper examination, the Purchaser shall at least examine the supplied goods after delivery at its location or that of a third party designated by the Purchaser carefully and in a reasonable scope – if applicable, through random checks – at least for dimensional accuracy, material, weight and surface condition. Defects that are revealed in this way shall be indicated to us in writing within one week of receipt of goods. If this does not occur, the goods shall be considered accepted. Hidden defects shall be communicated to S + P immediately after their discovery in writing. A proper notification of a defect shall indicate the willingness of the Purchaser to send back the rejected delivered goods on the request of S + P with freight prepaid. In the case of a justified notification of a defect, S + P shall compensate the Purchaser for the cost of the most economical shipping route; this shall not apply if costs increase because the delivered goods are located somewhere other than the place of intended use. If the Purchaser fails to carry out a proper inspection and/or to give notice of a defect, our liability for the defect which was not notified or not notified in time or not notified properly shall be excluded in accordance with the statutory provisions. In the case of goods intended for installation or mounting, this shall also apply if the defect only became apparent after the corresponding processing as a result of the breach of one of these obligations; in this case, the Purchaser shall, in particular, have no claims for reimbursement of the corresponding costs (dismantling and installation costs).

2. The legal regulations apply to the rights of Purchaser in the case of quality defects and defects of title (including incorrect and under delivery as well as improper assembly or defective assembly instructions), if not otherwise specified in preceding or following provisions.

3. The basis of our liability for defects is above all the agreement reached on the quality and the presupposed use of the goods (including any accessories and instructions). All product descriptions and manufacturer's specifications which are the subject of the individual contract or which were publicly announced by us (in particular in catalogues or on our Internet homepage) at the time of the conclusion of the contract shall be deemed to be an agreement on quality in this sense. Insofar as the quality was not agreed, it shall be assessed in accordance with the statutory regulation whether a defect exists or not (§ 434 para. 3 BGB (German Civil Code)). Public statements made by the manufacturer or on its behalf, in particular in advertising or on the label of the goods, take precedence over statements made by other third parties.

4. Independent of the preceding and following provisions, the legal regulations shall apply in the following cases:

- intentional actions on our part;
- damage due to injury to life, limb and health;
- claims in accordance with product liability law;
- if warranties taken over by us are excluded by deviating provisions.

In all cases, the special statutory provisions on the reimbursement of expenses in the case of final delivery of the newly manufactured goods to a consumer (supplier's recourse pursuant to §§ 478, 445a, 445b or §§ 445c, 327 para. 5, 327u BGB (German Civil Code)) shall remain unaffected, unless equivalent compensation has been agreed, e.g. within the scope of a quality assurance agreement.

5. Otherwise, the following aspects apply to the rights of the Purchaser in the case of quality defects and defects of title:

a) Liability for compensation for damages and compensation for wasted expenditures

Claims for damages due to defects of title and quality defects are excluded, provided that they are not

- based on grossly negligent actions on our part or on the part of our subcontractors, or

- based on the culpable violation of essential contractual duties. Essential contractual duties are any that protect the essential legal positions of the customer, the guarantee of which is the very essence and purpose of the contract; these also include those contractual duties, the performance of which enables the proper completion of the contract in the first place and on the observance of which the contracting partner frequently trusts and may reasonably trust.

In the event of a simple negligent breach of an essential contractual obligation,

we shall only be liable for the typically foreseeable damage according to the type of contract conclusion.

Claims for compensation for wasted expenditures in accordance with § 284 BGB (German Civil Code) shall be waived if and insofar as, as stated previously, a claim for compensation for damages in place of performance has been effectively disclaimed.

b) Supplementary performance

- If the delivered item is defective, we can initially choose whether we shall provide subsequent performance by remedying the defect (rectification) or by delivering an item free of defects (replacement delivery). If the type of subsequent performance chosen by us is unreasonable for the Purchaser in the individual case, he may reject it. Our right to refuse subsequent performance under the statutory preconditions remains unaffected.

- If the Purchaser has already installed the goods delivered by S + P into another object or attached them to another object at its location, the Purchaser must offer us the opportunity to remove the goods ourselves and reinstall or reattach improved or additional goods ourselves, provided that this is reasonable for the Purchaser, for the purposes of supplementary performance, and to define an appropriate period for this. This shall apply regardless of whether we were originally required to install or assemble goods in addition to their delivery; using this approach, the installation or assembly of delivered goods does not become part of supplementary performance.

- If the Purchaser has already resold the goods delivered by S + P, the Purchaser shall set a prior and appropriate period for S + P for supplementary performance if the Purchaser has to take back the goods from its customer as a result of the defect or if the Purchaser's customer has reduced the purchase price.

- Our right to refuse supplementary performance in accordance with the legal requirements remains unaffected.

c) Compensation for expenses for supplementary performance

- The Purchaser is only entitled to demand compensation from S + P for expenses incurred by it for the purpose of subsequent performance, in particular for the removal and reinstallation of the item or for the removal and reinstallation of the same, under the further statutory conditions, if the reasonable period of time set by the Purchaser for this purpose has elapsed without success.

- If, in the case of resale by the Purchaser, the object delivered by S + P needed to be removed and reinstalled or removed and reattached at the location of a direct customer of the Purchaser or a different customer in the supply chain for the purposes of supplementary performance, S + P is not required to compensate the Purchaser for the expenses that arise from this.

- If it is revealed that the request for rectification from the Purchaser is unjustified, S + P can demand compensation from the Purchaser for the costs arising (particularly testing, installation, removal and transport costs), unless the lack of defect was not able to be determined by the Purchaser.

The special aspects mentioned above under items b) and c) do not apply in the case of reimbursement of expenses in the case of final delivery of newly manufactured goods to a consumer (supplier recourse according to §§ 478, 445a, 445b or §§ 445c, 327 para. 5, 327u BGB (German Civil Code)), unless equivalent compensation has been agreed, e.g. within the framework of a quality assurance agreement.

6. In case of delivery of newly produced goods by S + P that are sold at the end of the supply chain in unprocessed form by a business owner to a consumer, even if the latter has further processed it, the following additional aspects apply to the rights of the Purchaser:

- Claims of the Purchaser based on § 478 BGB are excluded, provided that they involve a defect based on advertising statements or other contractual agreements not originating from S + P, or if the Purchaser, its immediate customer or another customer in the supply chain has provided a special guarantee to the end user.

- Claims are also excluded if the Purchaser itself, its immediate customer or another customer in the supply chain was not required to exercise warranty rights toward the end user in accordance with legal regulations or if the Purchaser has not objected to a claim asserted against it. This also applies if the Purchaser, its immediate customer or another customer in the supply chain has taken over warranties vis-a-vis the end user that exceed the legal requirements.

- The claims of the Purchaser based on § 478 BGB (German Civil Code) are excluded as a whole if the Purchaser has not properly fulfilled its legally required examination and notification duties in accordance with the detailed specifications of Section VI No. 1.

#### **VII. Other Liability**

Claims for damages due to a violation of a non-contractual duty (liability based on tort) or due to fault during or before the conclusion of the contract (culpa in contrahendo) as well as any other legal basis, particularly the violation of general duties arising from an obligation (§ 241 para. 2 BGB (German Civil Code)) or other contractual duties (§ 280 para. 1 BGB), provided that this does not involve warranty claims, are excluded, provided that they are not based on intentional, fraudulent or grossly negligent actions on our part or on the part of our subcontractors or based on culpable violation of essential contractual duties.

The exclusion of liability does not apply to damages caused by injury to life, limb and health or damages affecting warranties and claims in accordance with

product liability law.

In the case of a simple negligent violation of an essential contractual duty, however, we shall only accept liability for typical, immediate, average damage foreseeable at the time that the contract was concluded.

#### **VIII. Limitation**

1. Deviating from § 438 para. 1 No. 3 BGB (German Civil Code), the general limitation period for claims due to quality defects and defects of title, including the claim for reimbursement for expenses in the supply chain in accordance with § 445a para. 1, para. 3 BGB, is one year from delivery. If an acceptance has been agreed, the limitation begins upon acceptance.
2. However, if the goods constitute a building or an object that has been used as a building in the typical manner and has resulted in its defectiveness (building material), the limitation period is 5 years from delivery in accordance with the legal regulation (§ 438 para. 1 No. 2 BGB). Other legal special provisions on limitation remain unaffected (particularly § 438 para. 1 No. 1, para. 3, §§ 444, 445b BGB).
3. If the goods are items that can be used for a building, but also for other services and works, the limitation period pursuant to Clause 1 shall apply, unless the installation of the goods was of essential importance for the building. In that case, the limitation period pursuant to Clause 2 shall apply.
4. Deviating from § 445b Par. 2 S. 2 BGB, in the case of resale of the goods delivered by S + P by the Purchaser, the suspension of expiration regarding the limitation of defect claims from the Purchaser toward S + P ends three years after delivery of the goods.
5. The present limitation periods from the sale of goods law shall also apply to contractual and non-contractual claims for damages from the Purchaser based on a defect of the goods, unless the application of the regular legal limitation (§§ 195, 199 BGB) would lead to a shorter limitation in this individual case. However, claims for damages from the Purchaser due to wilful intent, gross negligence, injury to life, limb and health as well as warranties or product liability law expire by limitation only after the legal limitation periods. The shortening of the limitation period or the suspension of expiration shall also not apply if the matter involves the delivery of goods by S + P that are sold at the end of the supply chain in an unprocessed state by a business owner to a consumer (Recourse of the entrepreneur – §§ 478, 479 BGB).

#### **IX. Retention of Title**

1. The goods delivered by us shall remain our property up to the fulfilment of all existing claims or claims arising in future owed to us on any legal basis from the ongoing business relationship and/or specific purchasing contract with the Purchaser. In the case of the Purchaser behaviour that is contrary to the contract (e.g. payment default), we have the right to take back the reserved goods after first setting an appropriate period. If we take back the reserved goods, this represents a withdrawal from the contract. If we seize the reserved goods, this is a withdrawal from the contract. We are authorised to utilize the reserved goods after taking them back. After withdrawing an appropriate amount for the utilisation costs, the proceeds of utilisation shall offset the amounts owed to us by the Purchaser.
2. The Purchaser shall treat the reserved goods with care and insure them against damage due to fire, water and theft sufficiently at original value at its own expense. The maintenance and inspection work that is required shall be performed by the Purchaser at its own expense in a timely manner. Furthermore, upon request by S + P, the Purchaser shall at any time notify us of the state of the goods and communicate the storage place of the goods.
3. The Purchaser is authorised to dispose of or use the reserved goods in the normal course of business, provided that the Purchaser is not in default of payment. Pledges or assignments as security are not permitted. The Purchaser shall assign claims arising from resale or another legal basis (insurance, tort) regarding the reserved goods (including all current account balance claims) to us in full scope as security; this statement constitutes our acceptance of the assignment. We revocably authorise Purchaser to collect claims assigned to us for Purchaser's account and in its own name. This collection authorisation can be revoked at any time if Purchaser does not properly fulfil its payment obligations. Purchaser shall also not be authorised to assign this claim for the purposes of debt collection by way of factoring, unless the obligation of the factor is simultaneously established to effect the consideration in the amount of the debts directly to us for as long as we still have claims against the Purchaser. The Purchaser shall furthermore obligated notify us immediately of any seizure or other interference by a third party.
4. Any transformation of the reserved goods by the Purchaser is always carried out on our behalf. If the reserved goods are processed with other items which do not belong to us, we shall acquire co-ownership of the new item in proportion to the value of the reserved goods (total invoice amount including value-added tax) to the other processed items at the time of the processing. In the case of inseparable combination of the reserved goods with other items that do not belong to us, we shall acquire co-ownership of the new item in proportion to the value of the reserved goods (total invoice amount including value-added tax) to the other combined items at the time of the combination. If the Purchaser's item is to be considered the main item as a result of combination, we and the Purchaser agree that the Purchaser shall transfer co-ownership of this item

to us on a proportional basis; this statement constitutes our acceptance of this transfer. Our sole or co-ownership of an item arising from this shall be kept for us by the Purchaser. The same applies to the new item created through processing or transformation as to the reserved goods, but with the limitation that the Purchaser shall only assign claims of third parties to us in the amount that we have acquired through co-ownership according to the previous statement.

5. In case of access of third parties to the reserved goods, particularly seizures, the Purchaser shall indicate our property to the third parties and immediately notify us so that we may assert our property rights. If the third party is not able to reimburse us for the legal or out-of-court costs arising in this context, the Purchaser shall be liable for this.
6. We shall release the securities due to us insofar as the realisable value of our securities exceeds the secured claims by more than 10%, in which process we are at liberty to select the securities to be released.

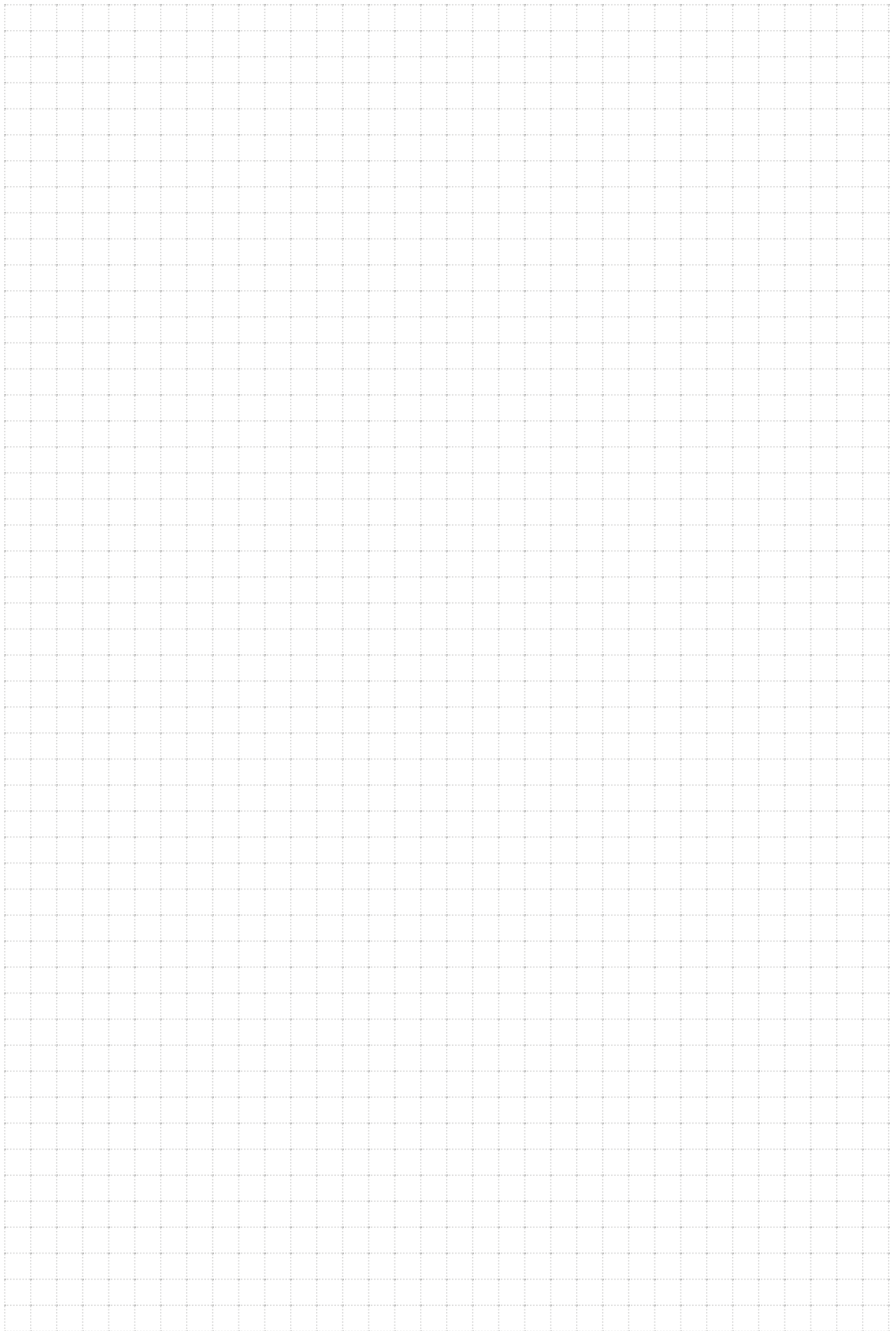
#### **X. Place of Fulfilment, Jurisdiction, Applicable Law**

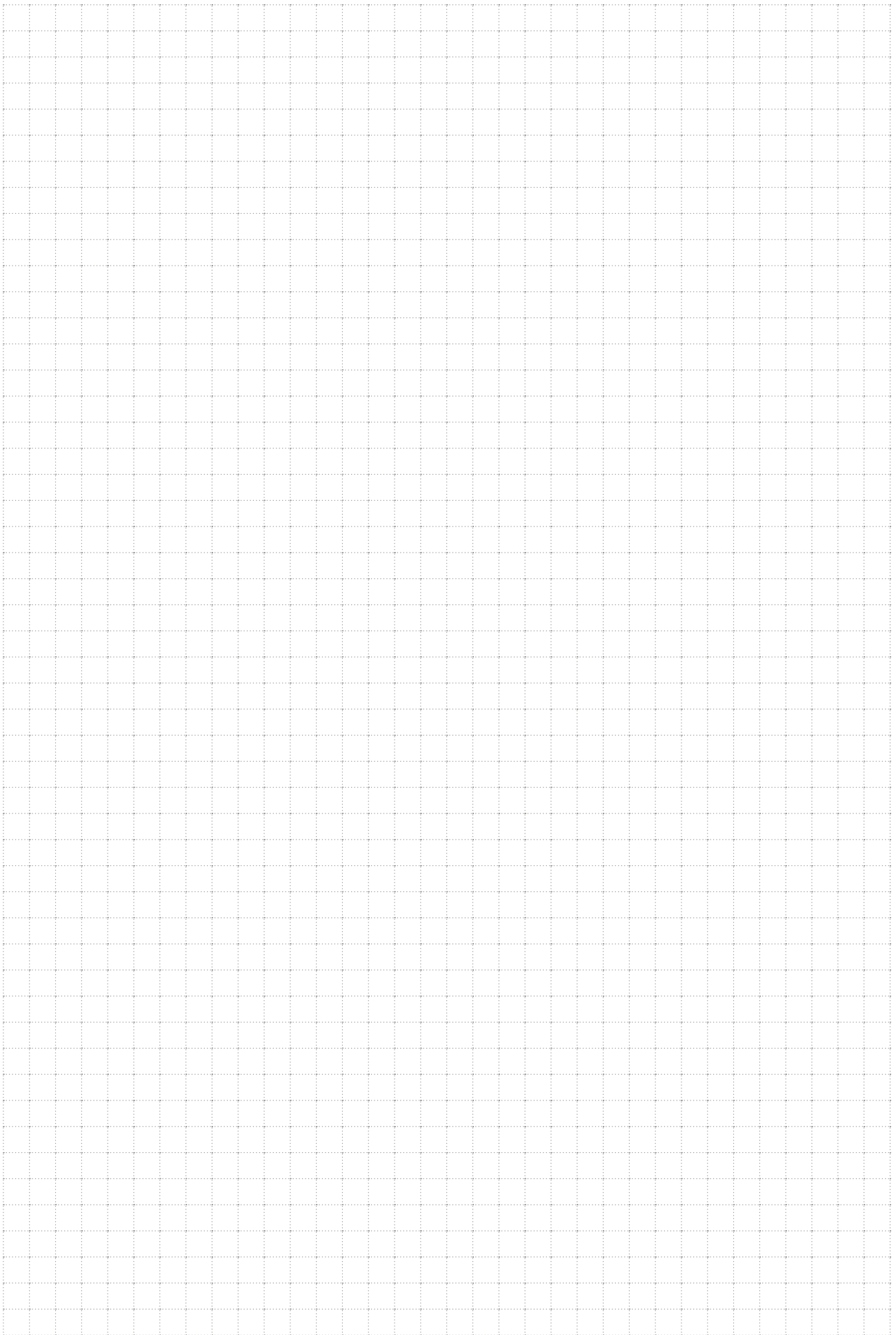
1. If the Purchaser is a merchant within the meaning of the German Commercial Code, a legal entity under public law or a special fund under public law, the exclusive – including international – place of jurisdiction for all disputes arising directly or indirectly from the contractual relationship shall be Heilbronn, Germany. The same shall apply if the buyer is an entrepreneur within the meaning of § 14 BGB (German Civil Code). However, we are also entitled in all cases to bring an action at the place of performance of the delivery obligation in accordance with these general terms of sale and delivery or a prior individual agreement or at the general place of jurisdiction of the buyer. Priority statutory provisions, in particular regarding exclusive jurisdiction, shall remain unaffected.
2. The legal relationship between us and our customers or between us and third parties shall be governed exclusively by applicable law in the Federal Republic of Germany, excluding international uniform law, particularly the UN Convention on Contracts for the International Sale of Goods.

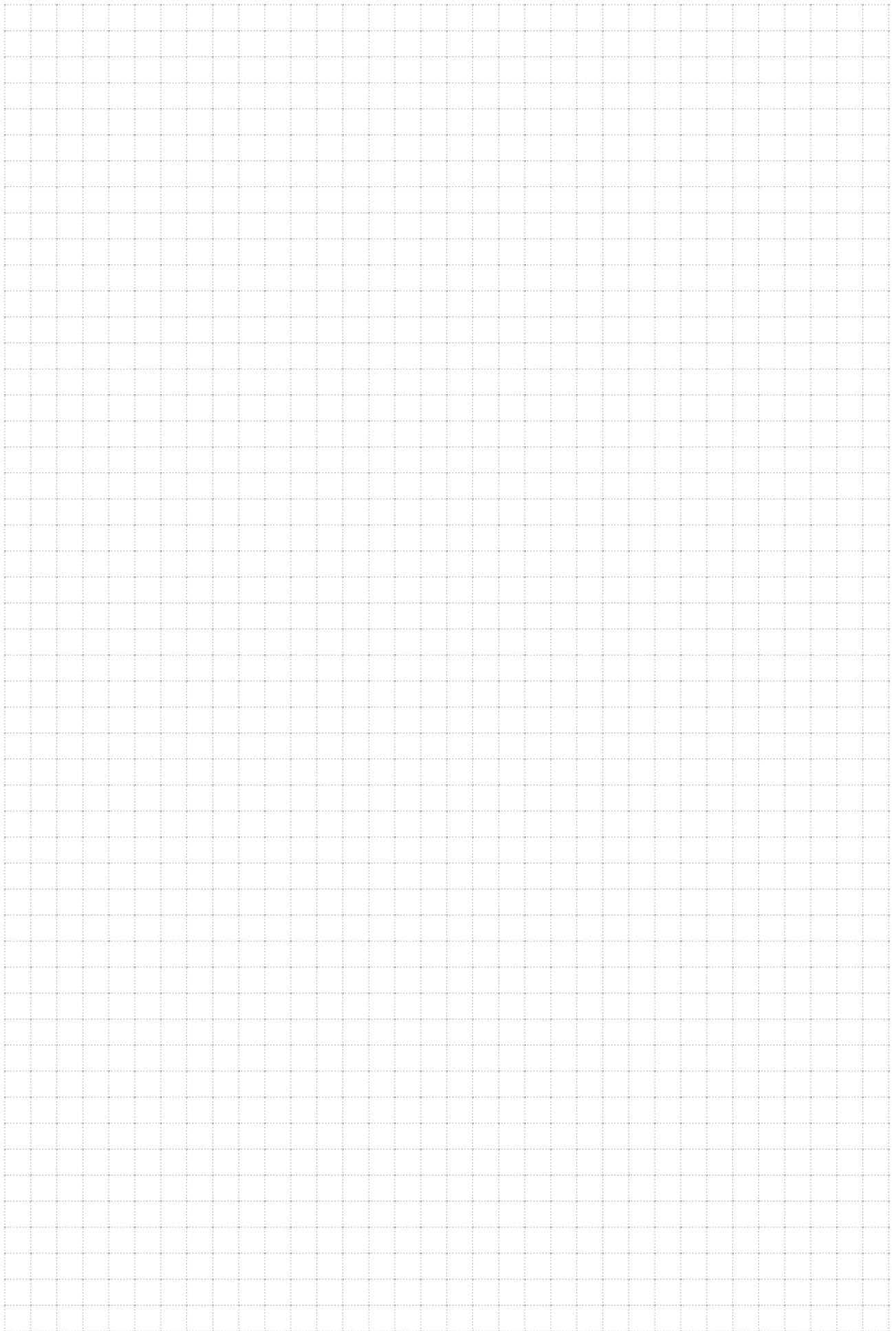
#### **XI. Other**

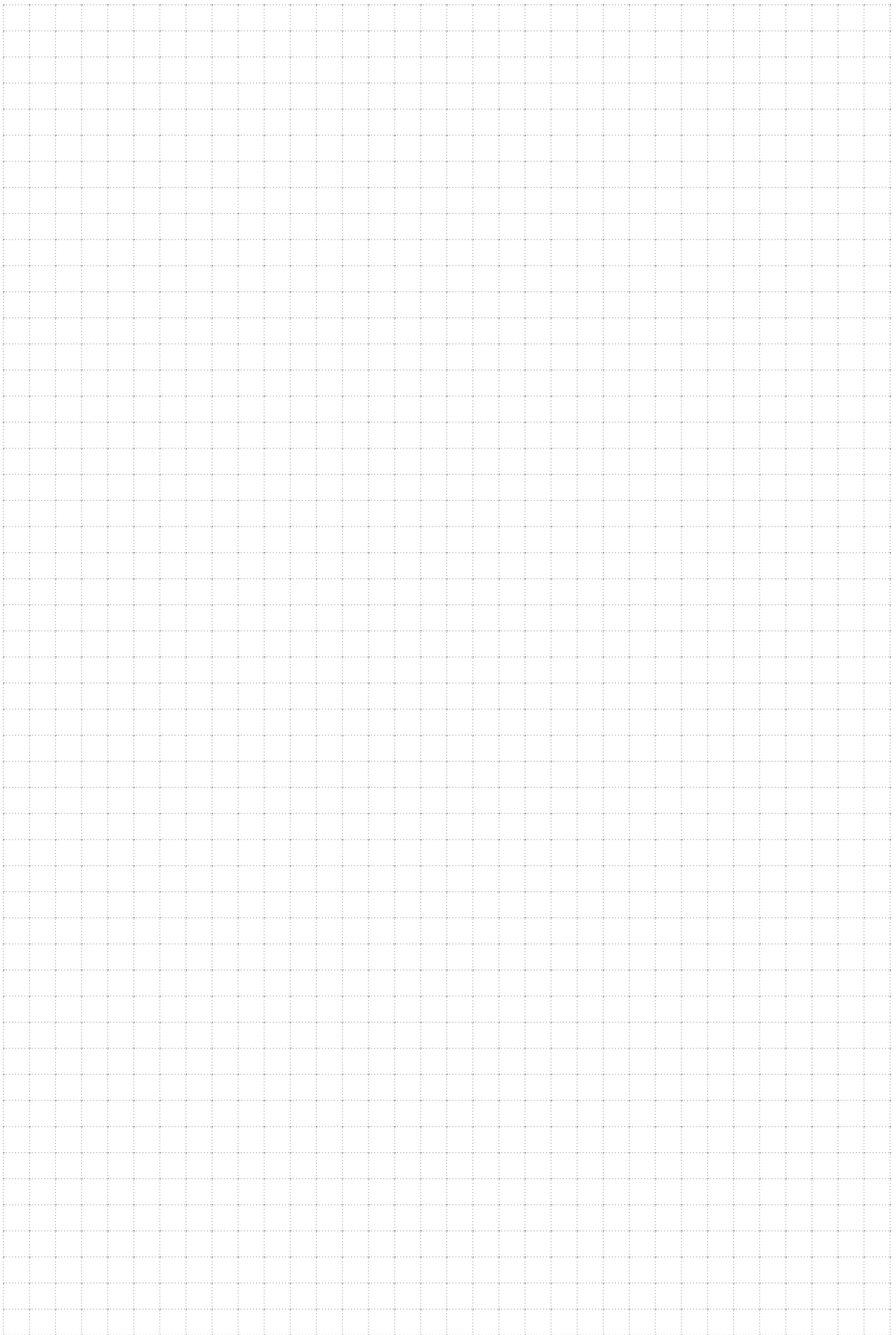
1. If these provisions are or become partially void or incomplete or are excluded by a special agreement, the validity of the remaining provisions shall not be affected by this.
2. We would like to note that we store data of our customers as part of our mutual business relationships in accordance with applicable data protection regulations, particularly the European General Data Protection Regulation and the German Data Protection Act.

Schäfer + Peters GmbH













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