WEIPPERTTECHNIK
Kunststoffbefestigung mit hoher Zugkraft



Information and Data

About our

Screws

Nuts

Washers

According to WT-Norm

Made of Glass Fiber Reinforced Plastics

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WEIPPERTTECHNIK
Kunststoffbefestigung mit hoher Zugkraft

WT-screws, WT-nuts und WT-washers made of plastic

Screws and fasteners made of plastics have five common features that distinguish them fundamentally from metal screws and fasteners:

1. **Low Self weight**
2. **Resistance to Corrosion**
3. **No Contact Corrosion**
4. **No Electrical Conductivity / Isolation**
5. **No Thermal Conductivity / Isolation**

Due to these conditions, constructions can be redesigned especially in the area of lightweight constructions. The variety of plastics makes it possible to implement many required chemical properties such as low electrical conductivity or the opposite. Chemical resistance to fuels, lubricants, solvents and cleaning agents, weather resistance, UV resistance, food safety or acid resistance. Another advantage is the individual coloring of our products.

To improve the mechanical properties, we modified the head geometry of our WT-screws. The changes can be found in our product descriptions.
Not only the WT-screws but also our WT-washers have been adjusted. Inside and outside diameter have different heights. Thus the creep characteristics of the plastic are thus compensated. This improves for example the seal on the contact surface.

With our basic injection molding tools we produce WT-screws made of glass fiber reinforced plastic material as **hexagon head screws, flat head screws with TX-drive, cylinder head screws, countersunk screws with TX-drive as well as hexagon nuts and washers** in sizes M3 to M10, in lengths 10 to 80 mm. Our WT-screws and WT-nuts have a metric standard thread and are thread able or rather true to gauge.

A great variety of specific connection parts can be produced of plastic.
Send us your request and we will make you an individual offer.

The possibilities in the area of plastic fasteners are enormous. If we consider only electrical and electronic industry, tank engineering and plant constructions as well as robotics, gripper technology, vehicle construction, furniture industry, water and wastewater technology, medical technology, automation technology, measuring, operation and control technology and a lot more.

Much is feasible – we will find the perfect innovative solution for you!

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Glass fibre reinforced plastic screws

WEIPPERT TECHNIK
Kunststoffbefestigung mit hoher Zugkraft

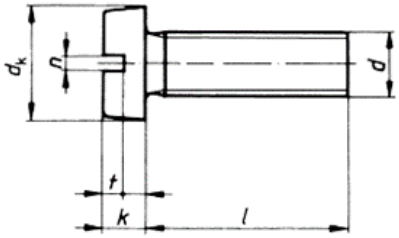


thread sizes:	M2 to M10; length from 10 mm to 80 mm
material:	PA with 30%, 50% or 60% glass fibre parts, beige or black
special material:	PC, PE, PP, PPA, POM, PVC, PEEK with glass fibre parts are possible
on customer request:	plastics with KTW- / FDA-admission, UL-listing is possible
colour request:	depending on material and availability

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WT – Flat Head Screws with Slot
according to WT-Norm WT-F-2020
similar to DIN EN ISO 1207, DIN 84
made of plastic (see material table below), with metrical thread to head



Nominal Size Nominal Thread-Ø d	l	Ø d_k	k
M2	6	3,75	1,2
	10	3,75	1,2
M2,5	6	4,4	1,55
	10	4,4	1,55

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PA6GF30	01	nt	sw

Detailed material properties can be found in our data sheet.

We produce screws of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

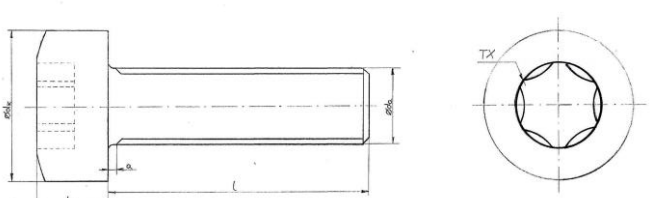
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WT – Flat Head Screws With TX-Drive

according to WT-Norm WT-F-2017

similar to DIN 34812, DIN EN ISO 14583, DIN 7985
made of plastic (see material table below), with metrical thread to head.





Nominal Size Nominal Thread Ø d	l	a	Ø d_a	Ø d_k	TX	k
M3	10	0,6	2,9	6,0	10	2,5
	16	0,6	2,9	6,0	10	2,5
	20	0,6	2,9	6,0	10	2,5
M4	10	0,6	3,9	7,9	20	3,3
	12	0,6	3,9	7,9	20	3,3
	16	0,6	3,9	7,9	20	3,3
	20	0,6	3,0	7,9	20	3,3
M5	10	0,6	4,9	9,3	25	3,7
	16	0,6	4,9	9,3	25	3,7
	20	0,6	4,9	9,3	25	3,7
	25	0,6	4,9	9,3	25	3,7
	30	0,6	4,9	9,3	25	3,7
M6	20	2,6	5,8	12,0	30	4,6
	25	2,6	5,8	11,9	30	4,9
	35	2,6	5,8	11,9	30	4,9
	40	2,6	5,8	11,9	30	4,9
M8	40	2,6	7,6	15,8	40	6,45
	80	1,4	7,8	15,9	40	6,7

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PA6GF30	01	nt	sw
PAGF50	02	nt	sw
PAGF60	05	nt	sw

Detailed material properties can be found in our data sheet.

We produce screws of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

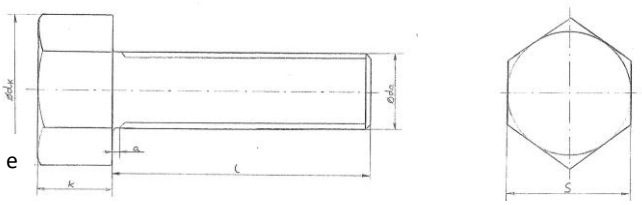
The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

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WT – Hexagon Head crews
according to WT-Norm WT-S-2017
similar to DIN 34810, DIN EN ISO 4017, DIN 933
made of plastic (see material table below), with metrical thread to head.



Nominal Size Nominal Thread-Ø d	l	a	Ø d_a	e	s	k
M4	10	0,6	3,9	7,8	7,0	3,0
	12	0,6	3,9	7,8	7,0	3,0
	16	0,6	3,9	7,8	7,0	3,0
	20	0,6	3,9	7,8	7,0	3,0
M5	10	0,6	4,9	8,9	8,0	3,7
	16	0,6	4,9	8,9	8,0	3,7
	20	0,6	4,9	8,9	8,0	3,7
	25	0,6	4,9	8,9	8,0	3,7
	30	0,6	4,9	8,9	8,0	3,7
M6	25	2,6	5,8	11,3	10,0	4,2
	35	2,6	5,8	11,3	10,0	4,2
	40	2,6	5,8	11,3	10,0	4,2
M8	40	2,6	7,6	14,7	13,0	5,5
	80	1,4	7,8	14,9	13,0	5,5
M10	80	2,2	10,0	18,3	16,0	6,5

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PA6GF30	01	nt	sw
PAGF50	02	nt	sw
PAGF60	05	nt	sw

Detailed material properties can be found in our data sheet.

We produce screws of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

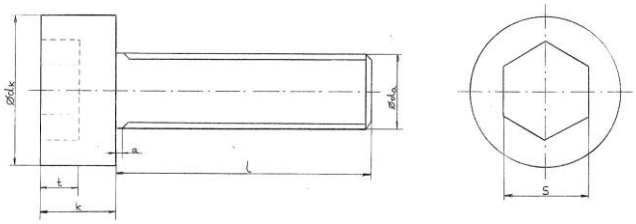
The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

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WT – Cylinder Head Screws
according to WT-Norm WT-Z-2017
similar to DIN EN ISO 4762, DIN 912
made of plastic (see material table below), with metrical thread to head



Nominal Size Nominal Thread-Ø d	l	a	Ø da	Ø dk	s	k	t
M3	10	0,6	2,9	6,0	2,5	3,0	1,6
	16	0,6	2,9	6,0	2,5	3,0	1,6
	20	0,6	2,9	6,0	2,5	3,0	1,6
M4	10	0,6	3,9	7,0	3,0	4,0	2,0
	12	0,6	3,9	7,0	3,0	4,0	2,0
	16	0,6	3,9	7,0	3,0	4,0	2,0
	20	0,6	3,9	7,0	3,0	4,0	2,0
M5	10	0,6	4,9	8,5	4,0	5,0	2,5
	16	0,6	4,9	8,5	4,0	5,0	2,5
	20	0,6	4,9	8,5	4,0	5,0	2,5
	25	0,6	4,9	8,5	4,0	5,0	2,5
	30	0,6	4,9	8,5	4,0	5,0	2,5
M6	25	2,6	5,8	9,8	5,0	6,0	3,0
	35	2,6	5,8	9,8	5,0	6,0	3,0
	40	2,6	5,8	9,8	5,0	6,0	3,0
M8	40	2,6	7,8	12,8	6,0	8,0	4,0
	80	1,4	7,8	12,8	6,0	8,0	4,0
M10	80	2,2	10,0	15,8	8,0	10,0	5,1

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PA6GF30	01	nt	sw
PAGF50	02	nt	sw
PAGF60	05	nt	sw

Detailed material properties can be found in our data sheet.

We produce screws of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

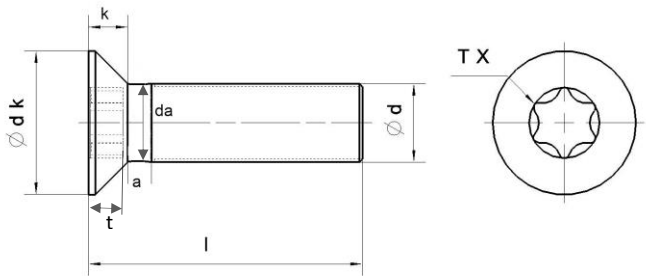
The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

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WT – Countersunk Head Screws with TX-Drive
according to WT-Norm WT-SK-2017
similar to DIN 34811, DIN EN ISO 7046, DIN 965
made of plastic (see material table below) with metrical thread to head



Nominal Size Nominal Thread-Ø d	l	a	Ø da	Ø dk	TX	t	k
M3	10	1,3	2,9	6,0	10	1,7	2,3
	16	1,3	2,9	6,0	10	1,7	2,3
	25	1,3	2,9	6,0	10	1,7	2,3
M4	10	1,3	3,85	8,3	20	1,5	2,85
	16	1,3	3,85	8,3	20	1,5	2,85
	20	1,3	3,85	8,3	20	1,5	2,85
M5	10	1,0	4,8	9,9	25	1,95	3,2
	16	1,0	4,8	9,9	25	1,95	3,2
	25	1,0	4,8	9,9	25	1,95	3,2
M6	19	-	5,7	10,9	30	3,0	3,5
	45	-	5,7	10,9	30	3,0	3,5

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PA6GF30	01	nt	sw
PAGF50	02	nt	sw
PAGF60	05	nt	sw

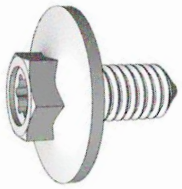
Detailed material properties can be found in our data sheet.

We produce screws of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

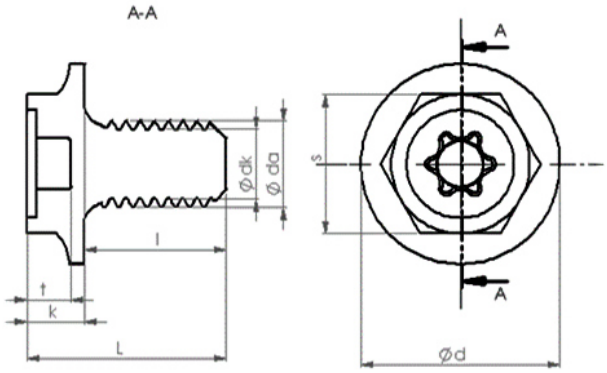
The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

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WT – Hexagon head screw with TX drive and washer
according to WT-Norm WT-SU-2022
made of plastic (see material table below),
with metrical thread to head.



Nominal Size Nominal Thread-Ø d	Nominal Length	Thread Length l	Ø da	s	Ø d	TX	t	k
M6	14,0	12,6	6,0	8,0	18,0	25	3,2	6,1

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PA6GF30	01	nt	sw
PAGF50	02	nt	sw
PAGF60	05	nt	sw

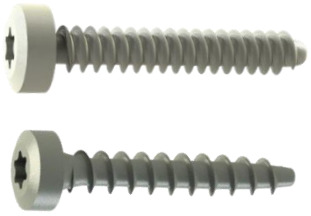
Detailed material properties can be found in our data sheet.

We produce screws of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

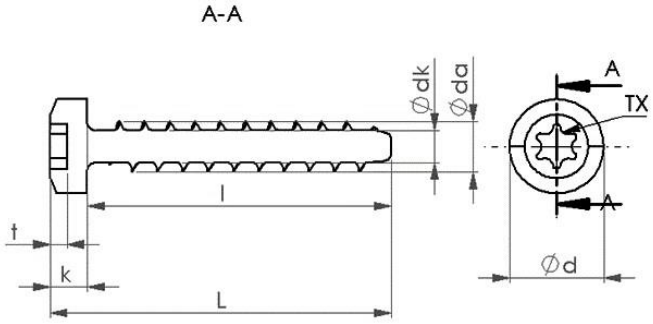
The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

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WT – Self Tapping Screws with TX-Drive
according to WT-Norm WT-SFS-2022
made of plastic (see material table below), with thread to head



Nominal Size Nominal Thread-Ø d	l	Ø da	Ø dk	Ø d	TX	t	k
5 thread pitch 1,5	30	5,0	3,2	9,3	25	2,0	3,7
5 thread pitch 2,5	30	5,0	3,2	9,3	25	2,0	3,7
6 thread pitch 2,5	23	6,0	3,85	10,2	25	2,0	3,7
6 thread pitch 2,5	26	6,0	3,85	10,2	25	2,0	3,7
6 thread pitch 2,5	30	6,0	3,85	10,2	25	2,0	3,7

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PAGF50	02	nt	sw
PAGF60	05	nt	sw

Detailed material properties can be found in our data sheet.

We produce screws of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

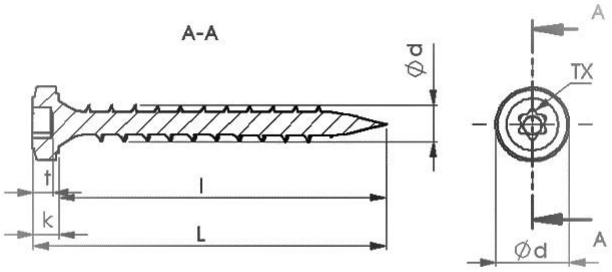
The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

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WT – Self Tapping Screws with a point and TX-Drive
according to WT-Norm WT-SFS-2022
made of plastic (see material table below), with thread to head





a

Nominal Size Nominal Thread-Ø d	l	Ø da	Ø d	TX	t	k
3,75 thread pitch 2,5	30	3,75	7,85	20	2,4	3,7

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PAGF50	02	nt	sw

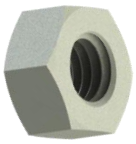
Detailed material properties can be found in our data sheet.

We produce screws of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

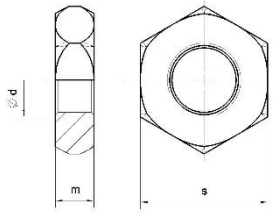
The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

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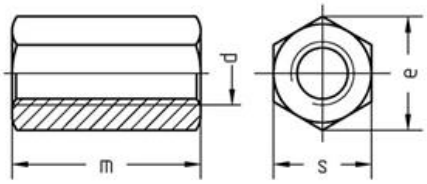
WT – Hexagon Nuts
according to WT-Norm WT-SM-2017
similar to DIN 34814, DIN EN ISO 4032, DIN 934
made of plastic (see material table below), with metrical thread



Nominal Size Nominal Thread-Ø d	m	s	Ød
M4	3,2	7,0	4,0
M5	4,7	8,0	5,0
M6	5,0	10,0	6,0
M8	6,5	13,0	8,0
M10	8,4	16,0	10,0

WT-Hexagon Long Nuts
similar to DIN 6334





Nominal Size Nominal Thread-Ø d	length in mm
M8	30

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PA6GF30	01	nt	sw
PAGF50	02	nt	sw
PAGF60	05	nt	sw

Detailed material properties can be found in our data sheet.

We produce nuts of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

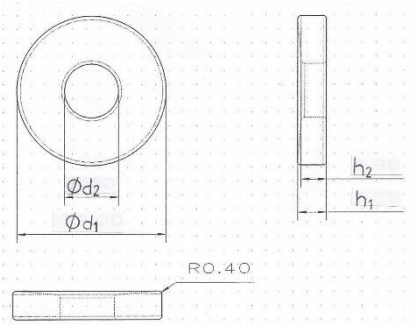
The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

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WT – Washers
according to WT-Norm WT-U-2017
made of plastic (see material table below)





Nominal Size Nominal Thread-Ø d	d_1	d_2	h_1	h_2
M6	18,0	6,5	3,2	2,9
M8	22,0	8,5	3,2	2,9
M12	24,0	13,0	2,7	

Material Table	Short Designation	Natural Coloured = nt	Black = sw
PA6GF30	01	nt	sw
ABS	06	nt	sw

Detailed material properties can be found in our data sheet.

We produce washers of PA with 30%, 50% or 60% glass fiber content and PEEK with 30% glass fiber content, also PE, POM, ABS …, short all current thermoplastics are feasible on customer request also in colour.

The mechanical and physical properties, especially tensile strength, are subject to environmental conditions. We recommend a practical test.

For tightening we recommend a torque key and a worth of 50 % of the breaking torque.

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Data Sheet – Material Properties

General Properties of our Plastic Screws

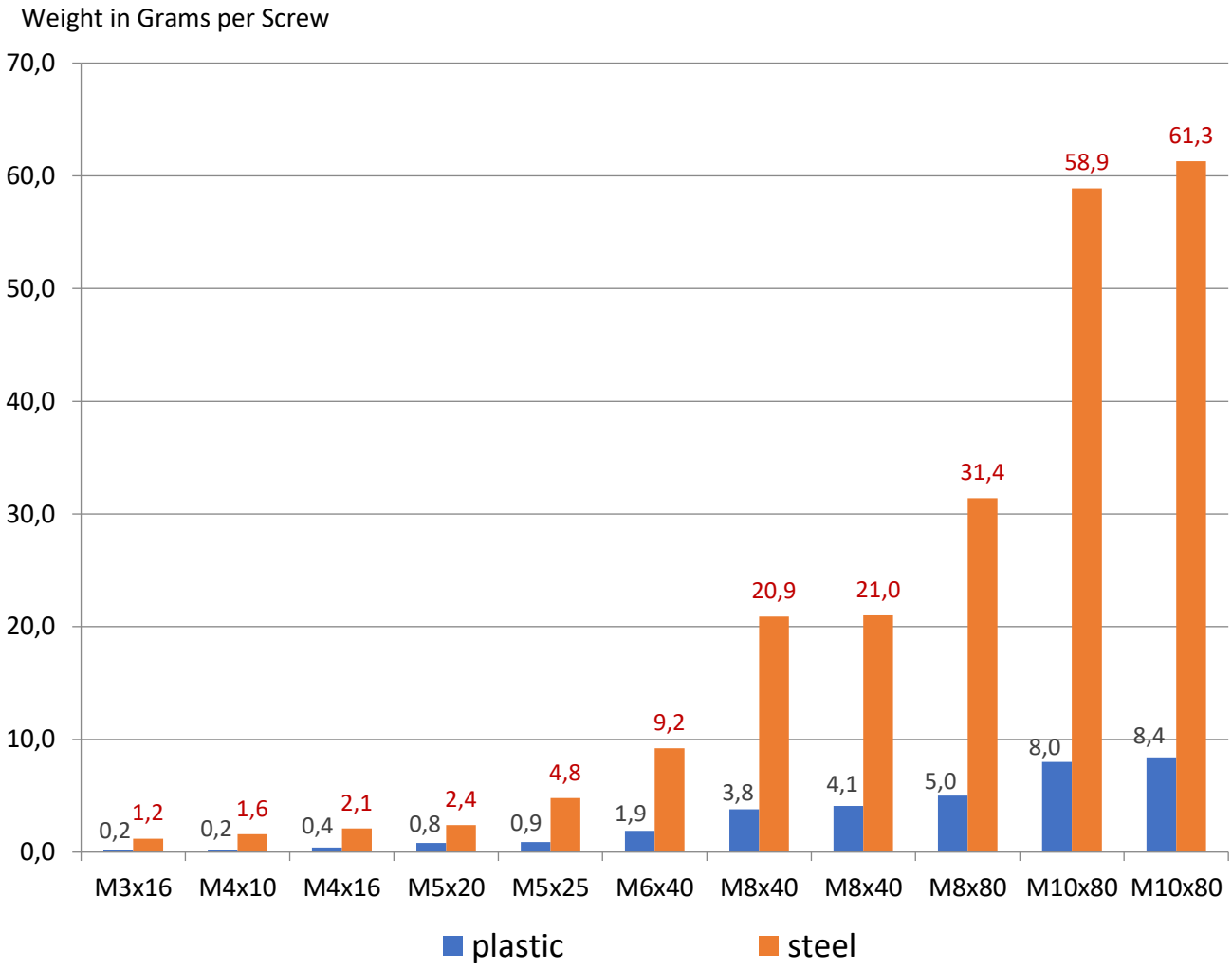
1. **Low self weight**
2. **Resistance to Corrosion**
3. **No Contact Corrosion**
4. **No Electrical Conductivity / Isolation**
5. **No Thermal Conductivity / Isolation**

General properties according to the data sheets of our standard plastics

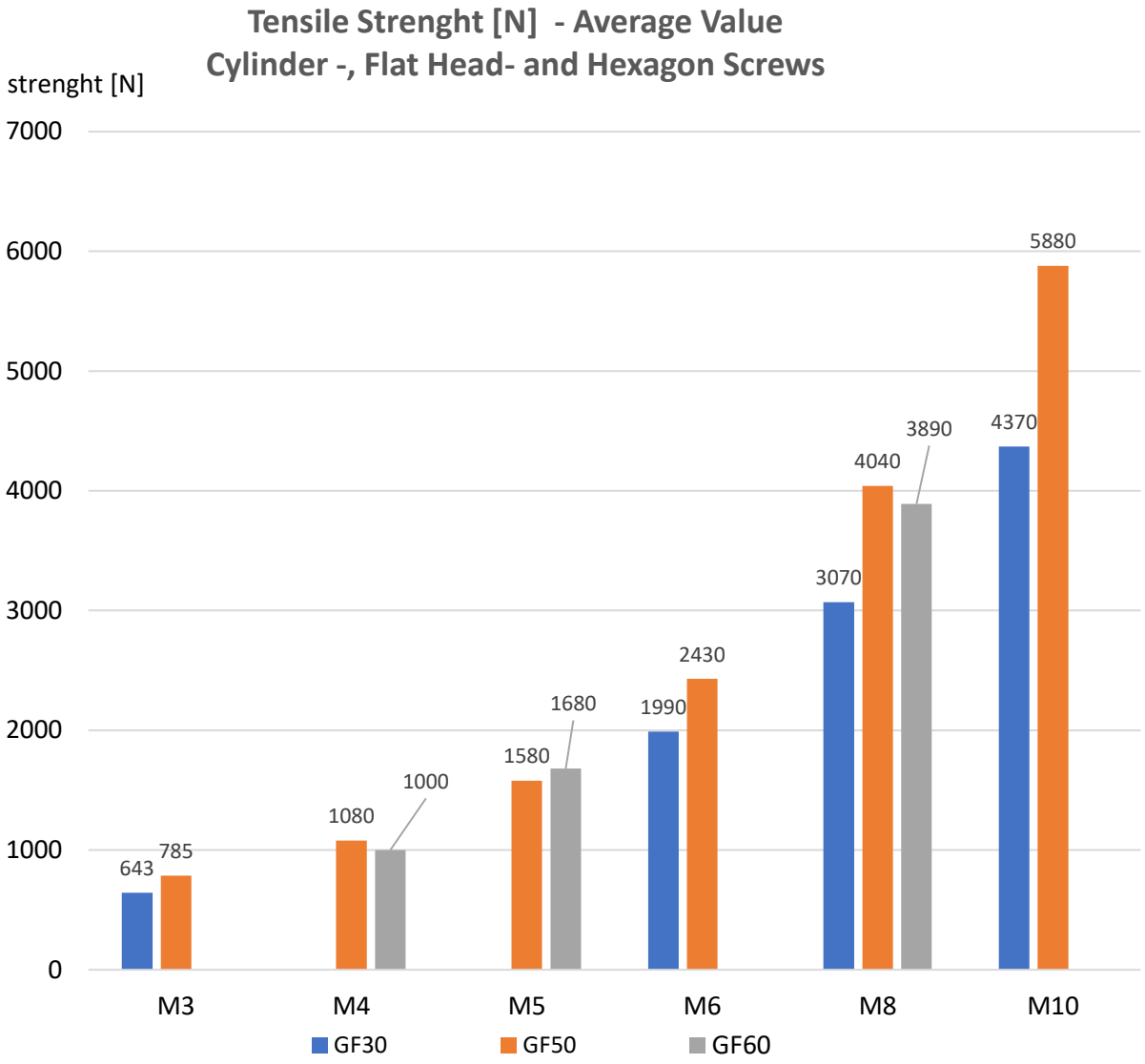
Material	General Properties	Operating temperature	Mechanical Properties	Amissions
PA6GF30	- excellent stiffness and strength - high toughness - good chemical resistance	Maximum service temperature (continuous) 110°C	Tensil modulus 9800 M Pa Strain at break 3,0%	UL94 konform (HB)
PAGF50	- excellent stiffness and strength - excellent impact strength - high dimensional stability - low tendency to warp - good chemical resistance	Maximum service temperature (continuous) 120°C	Tensil modulus 16000 M Pa Strain at break 3,5%	UL94 konform (HB)
PAGF60	- high mechanical strength - excellent dimensional stability - good toughness - low tendency to warp	Maximum service temperature (continuous) ca. 120°C	Tensil modulus 21000 M Pa Strain at break 3,5%	UL94

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Weight Comparison Plastic Screws - Steel Screws



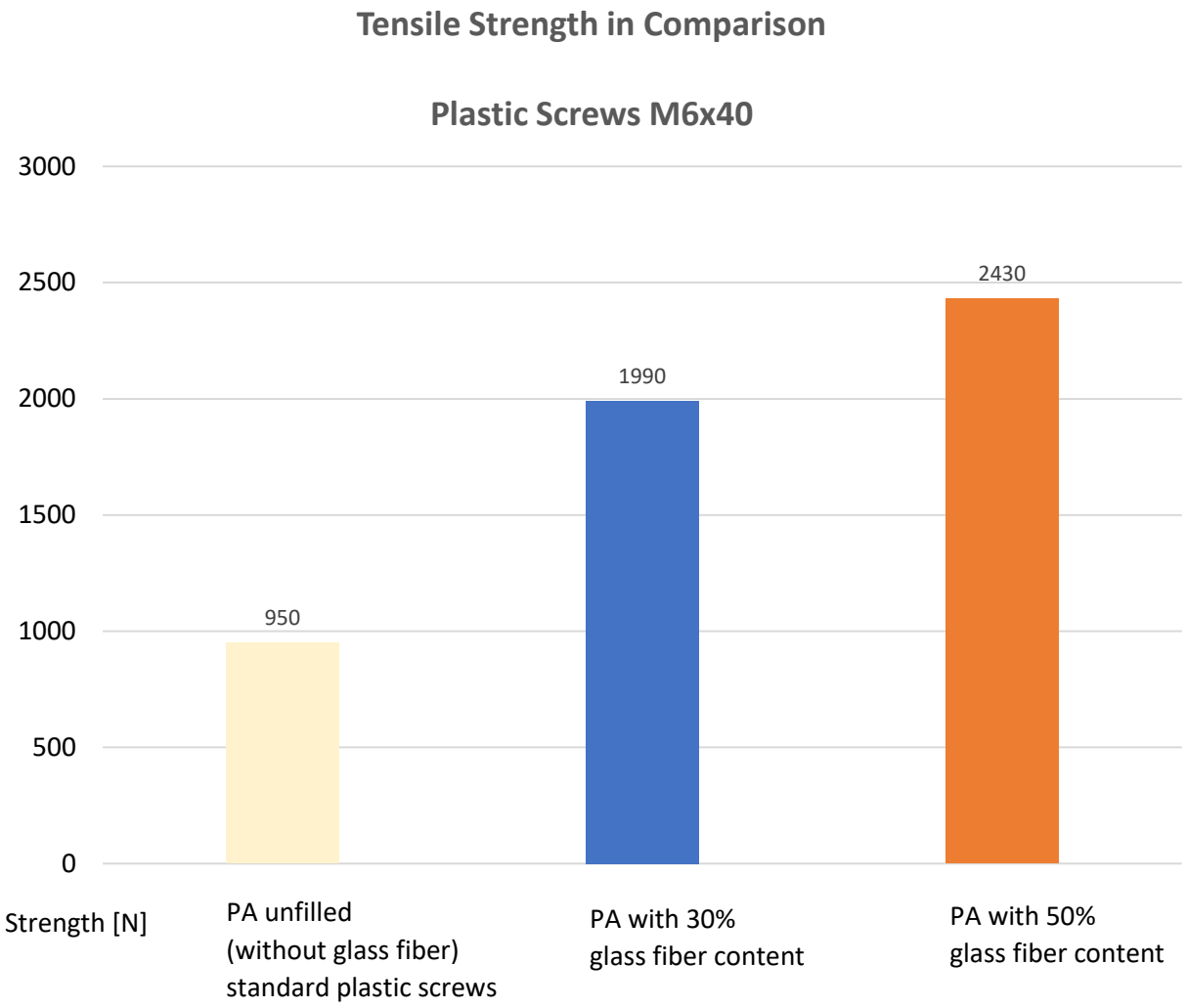
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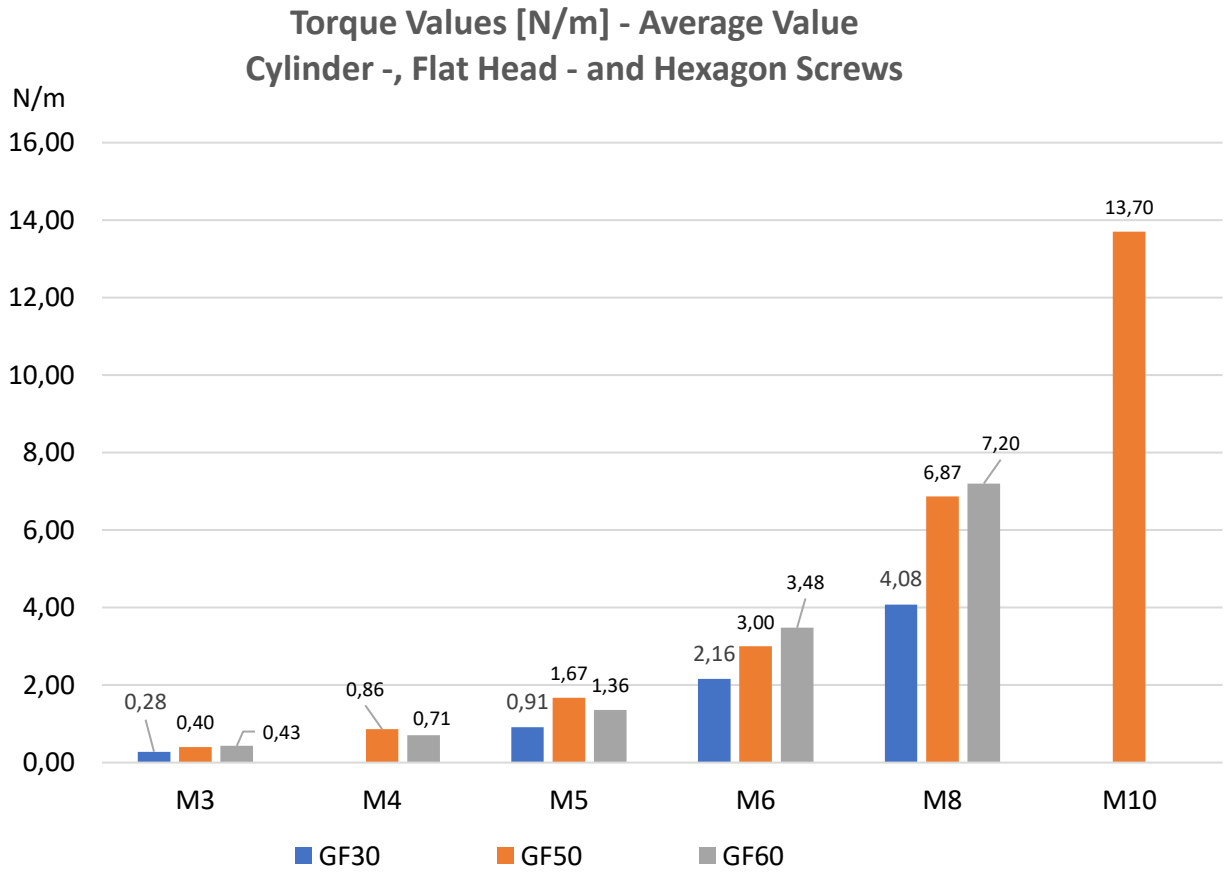
Plastic: PA with glass fiber content

To be Observed:
Tensile strength is dependent on the screw in depth
M3 screw in depth 14 – 16 threads
M4-M10 screws in depth 6 – 8 threads

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Plastic: PA with glass fiber content

To be Observed:
Torque values is dependent on coefficient of friction
Values refer to steel washers

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WEIPPERT TECHNIK
Kunststoffbefestigung mit hoher Zugkraft

Applications of Plastic Screws

- Automobile
- Commercial Vehicles
- Two-Wheelers and other Vehicles
- Rail Vehicles
- Ship Construction
- Aircraft Construction
- Space Travel
- Food Industry
- Energy Technology
- Electronics and Electrical Engineering
- Medical Technology
- Machinery and Plant Engineering
- Optical Instruments
- Building Industry
- Furniture Manufacture

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