MEASUREMENT GUIDE

ENGLISH

MEASUREMENT GUIDE

EXELLE VARIO

Rev. 0 dated 18/06/2020

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MEASUREMENT GUIDE

INTRODUCTION

This guide has the sole purpose of helping the person in charge of filling up the order from, indicating, section by section, the reference points to take measurements from, with some advice, too, so that the delivered wheelchair corresponds to what requested.

The pieces of information in this guide are exclusively technical and regards the device; it does not and it does not intend to provide postural advices.

MEASUREMENT GUIDE

SEAT WIDTH (LS)

The distance between the outer sides of the frame

33 36 39 42 45 48 cm.

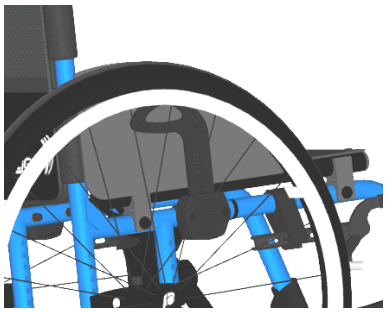
The width you choose in the order form corresponds to the distance between the outer sides of the frame.
The real width, in other words, the room between the two fixed side guards, approximately results 5 ~10 mm wider.

Real LS = LS + 5 ~10 mm.

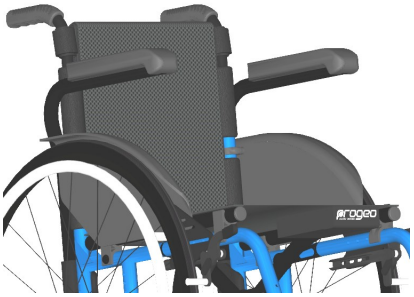
FIXED SIDE GUARD SPACING

You can ask for a real LS wider than LS up to 1.5 cm each side (total 3 cm).
For instance, write the note: *"space the side guards to have real seat width 41" (if LS = 39).*

Hereafter, some useful information according to the choice of side guards or armrest.

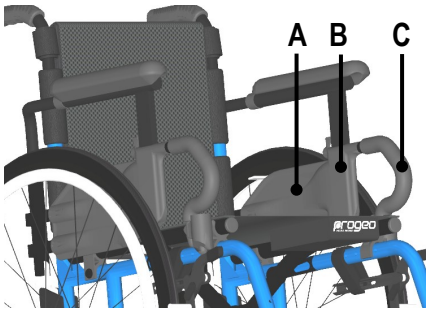


REMOVABLE SIDE GUARDS
Not spaceable
Real LS = LS +10 mm

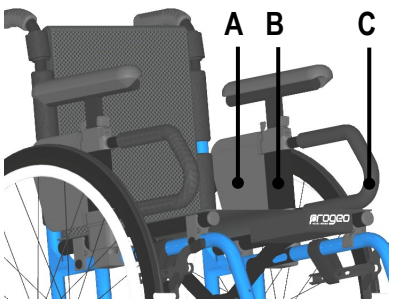


TUBULAR ARMRESTS
They are provided with side guards.
See fixed or removable side guards.

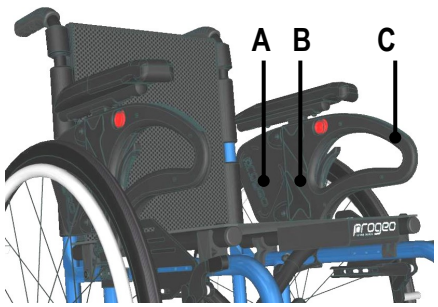
REMOVABLE ARMRESTS
Not spaceable
Real LS = LS +10 mm



FLIP-UP ARMRESTS
Not spaceable
Real LS between skirt guards **A** = LS+20 mm
Real LS between posts **B** = LS
Real LS between tubes **C** = LS



DESK ARMRESTS
Not spaceable
Real LS between skirt guards **A** = LS+20 mm
Real LS between posts **B** = LS
Real LS between tubes **C** = LS



PROGEO ARMRESTS
Spaceable 1 cm each
Real LS between skirt guards **A** = LS + 25 mm
Real LS between central body **B** = LS
Real LS between the points **C** = LS + 10 mm

MEASUREMENT GUIDE

SEAT DEPTH (LS)

The distance between the backrest tube and the front side of the seat canvas

35 37.5 40 42.5 45 47.5 cm.

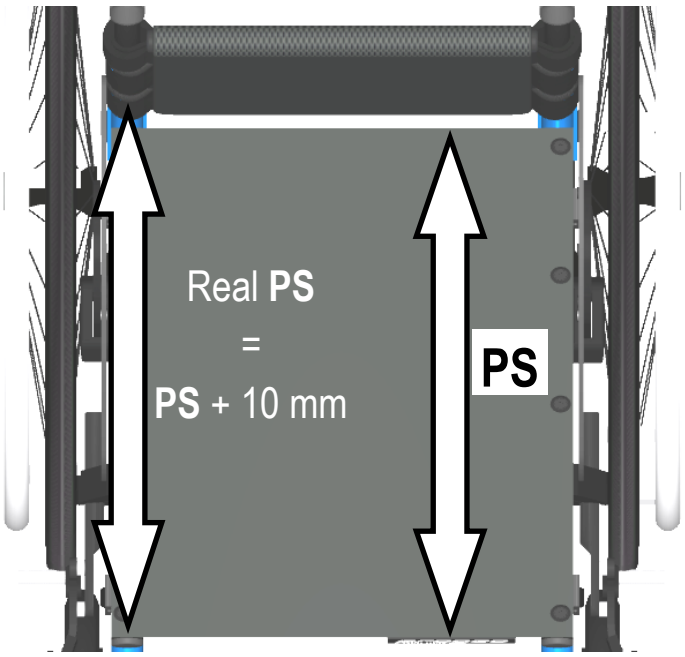
The length of the seat canvas corresponds to the seat depth that is indicated in the order form.

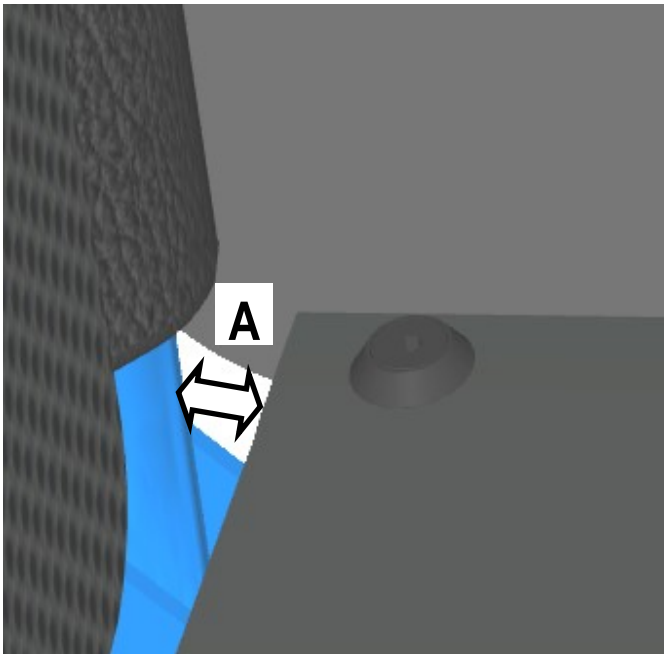
However, the real seat depth (from the backrest tube to the front side of the canvas) approximately results 10 mm longer (15 mm with frame Dynamic 2.0).

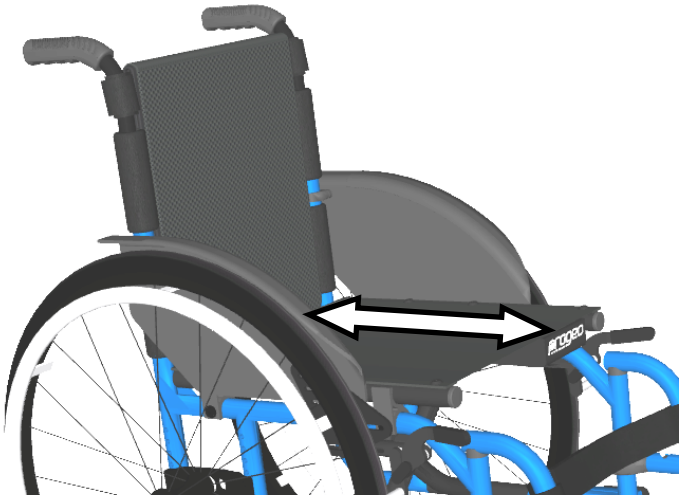
That is due to gap **A** between the rear side of the canvas and the backrest tube.

Example:

Seat depth in the order form	40 cm
Length of the seat canvas	40 cm
Real seat depth	41 cm (41.5 cm with Dynamic 2.0)







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FOOTPLATE DISTANCE (DP)

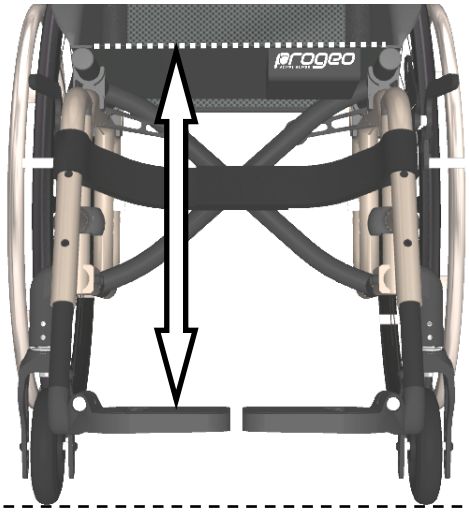
The distance between the front side of the seat canvas (not of the cushion) and the rear side of the footrest plate

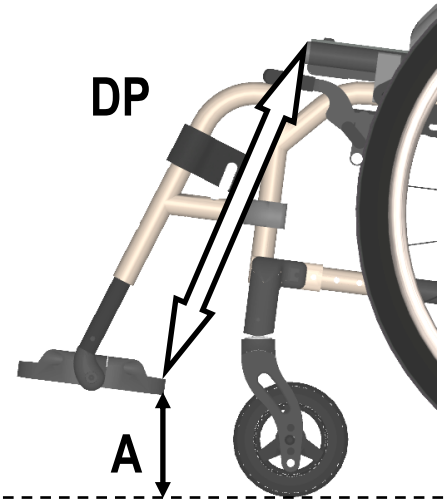
When taking measure, consider the seat canvas straight.

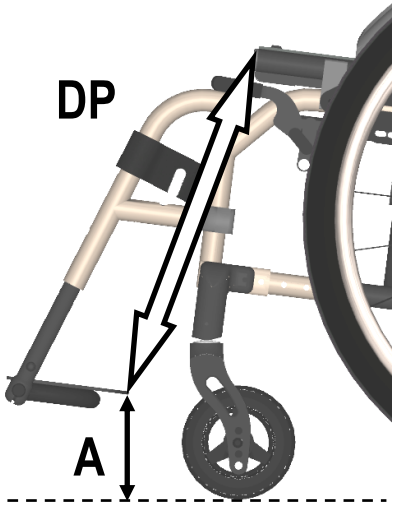
In the two examples here below, we can see the reference point of the double and one-piece footplates.

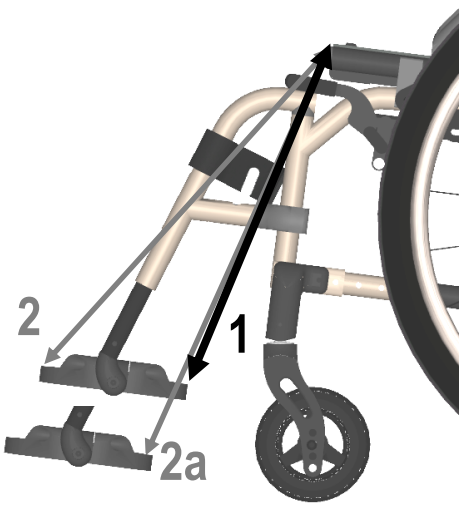
In both cases, the measure is taken form the rear side of the plate, regardless the position of the plate.

Warning: the footplate distance is very important and it can affect the front and rea height of the wheelchair the minimum front height, in fact, should be at least 4-5 cm greater than DP to allow for enough room **A** between the lower side of the footplate and the ground.









In the picture aside, we show a possible mistake and its consequence.

The measure **1** is the correct one according to what above explained; on the other hand, the **2** takes as reference the front side of the plate and it will result longer than **1**.

If you write the measure **2** in the order from, the wheelchair will be assembled following that length but the reference point will be the rear side of the plate, consequently, you will end up with the situation **2a**, that is, a DP longer than you expected.

The difference can even be a few centimetres.

All footplates, however, are height adjustable.

NOTE: should you need a DP shorter than what indicated in the order from, contact Rehateam s.r.l. to evaluate if it is feasible.

MEASUREMENT GUIDE

SETTING (point of balance)

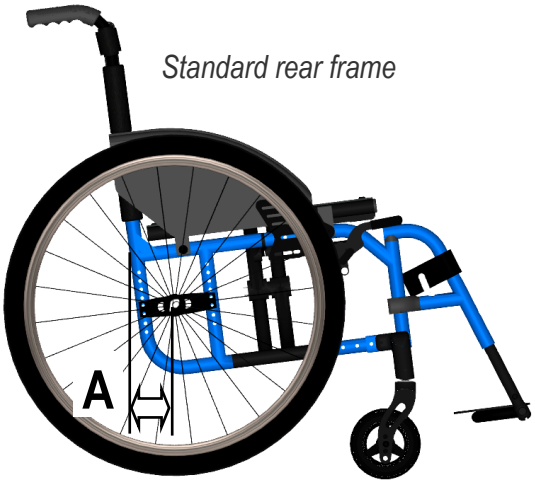
The distance between the axis of the backrest tube in its lower side and the centre of the rear wheel

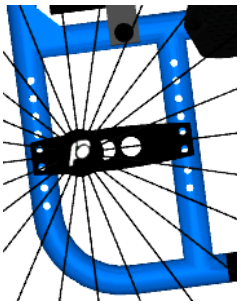
PRUDENTIAL – STANDARD – ACTIVE – EXTREME

A prudential setting reduces the risk of tipping back, but makes the wheelchair less dynamic and longer.

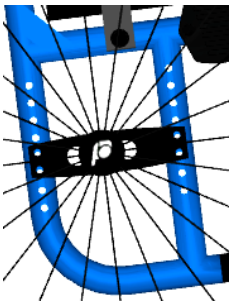
On the other hand, an active setting improves the manoeuvrability of the wheelchair and it makes it shorter.

Standard rear frame

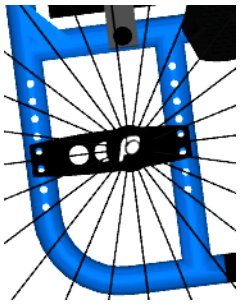




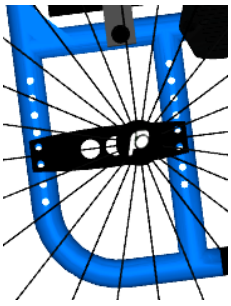
Prudential, **A** = 3.5 cm approx.



Standard, **A** = 6 cm approx.

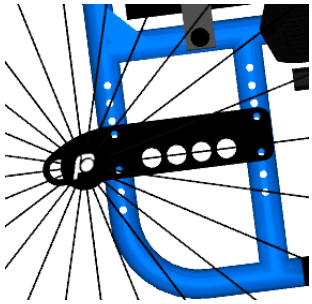


Active, **A** = 8.5 cm approx.



Extreme, **A** = 10 cm approx.

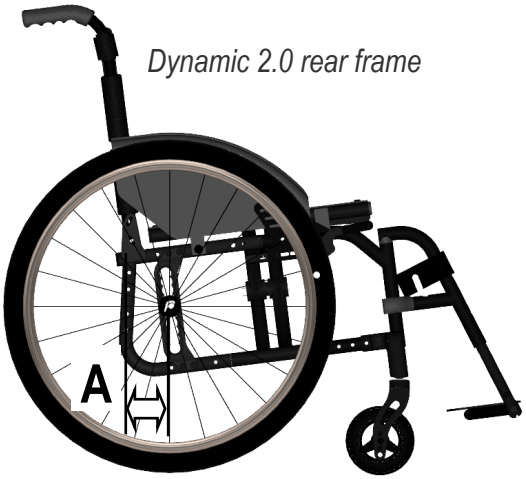
Note: the wheel receiver is fixed to the same hole of the prudential setting, but the wheel plate is turned by 180°.

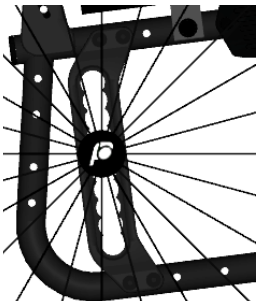


Rearward (with xtended rear wheel plate), two positions behind the backrest.

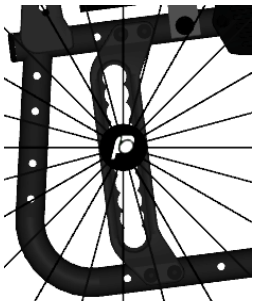
A = - 1.5 cm or - 4 cm approx.

Dynamic 2.0 rear frame

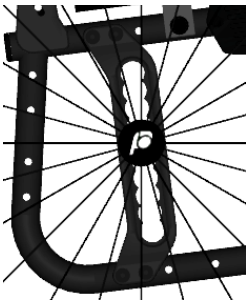




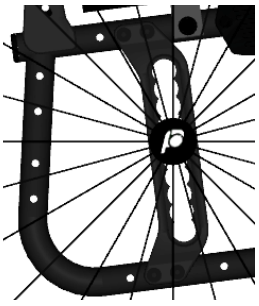
Prudential, **A** = 3.5 cm approx.



Standard, **A** = 5.5 cm approx.



Active, **A** = 7.5 cm approx.



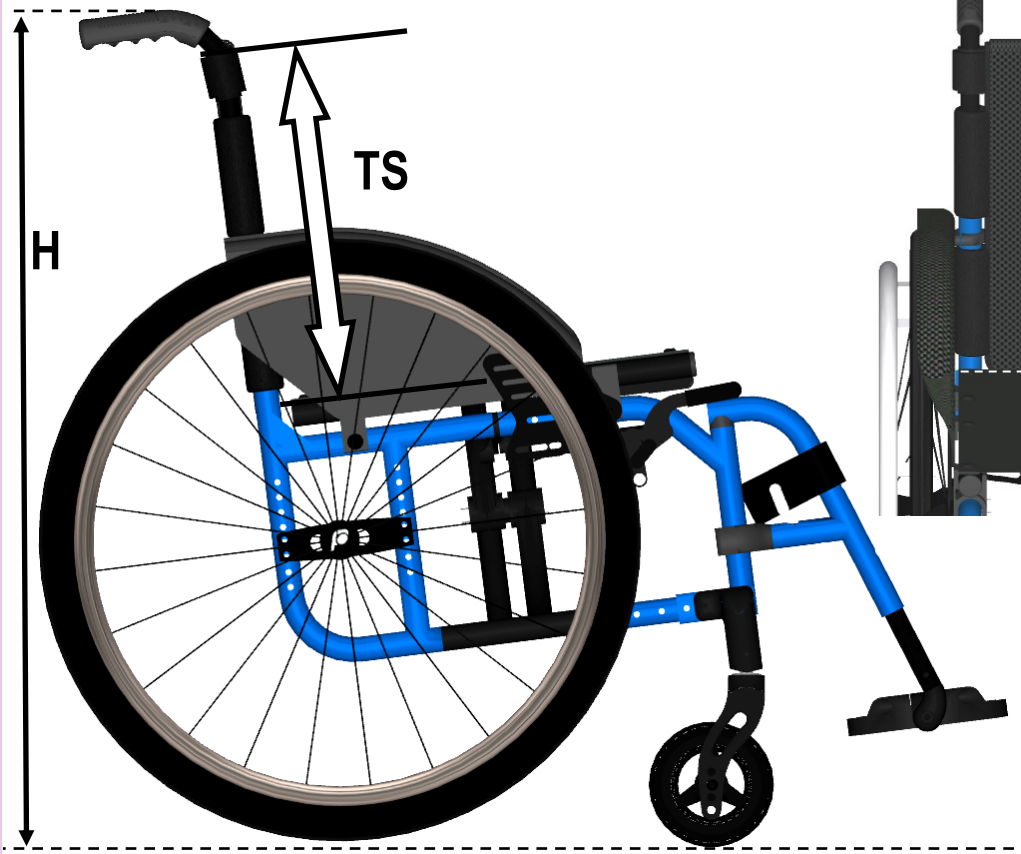
Extreme, **A** = 9.5 cm approx.

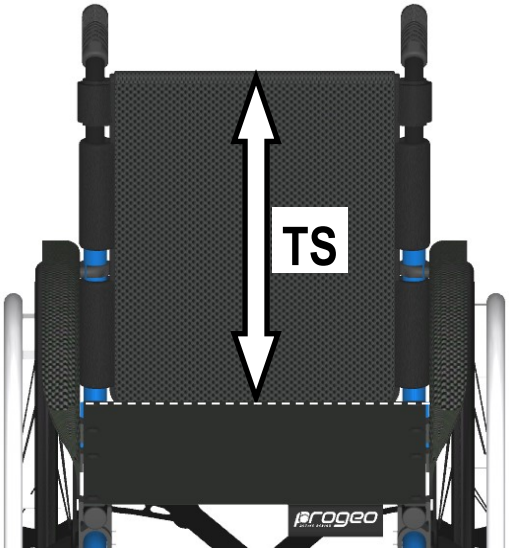
MEASUREMENT GUIDE

BACKREST HEIGHT (TS)

The distance between the rear side of the seat canvas (not of the cushion) and the upper side of the backrest upholstery

from 30 to 54 cm (every 1,5 cm)





The backrest height also determines the height **H** from the ground to the push handles.

To quickly calculate such height, **H** = rear height + backrest height + 3 cm

If the use is frequently pushed by an attendant, consider his/her tallness and the possible need to provide the wheelchair with adjustable push handles.

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BACKREST ANGLE

Only Dynamic 2.0 rear frame

The angle between the backrest tube and the seat.

from 81° to 99°

The backrest is usually assembled at 90° with respect to the seat and it is adjustable.

However, you may ask for the backrest assembled to a certain inclination within the possible range.

In that case, just write a note such as " backrest angle approximately 4° wider than 90° (= 94°)".

CROSSBAR

Single or double

SINGLE CROSSBAR

Available for widths 33, 36, 39, 42, 45, 48

The wheelchair is tested for a maximum load of 125 kg with the single crossbar.

DOUBLE CROSSBAR

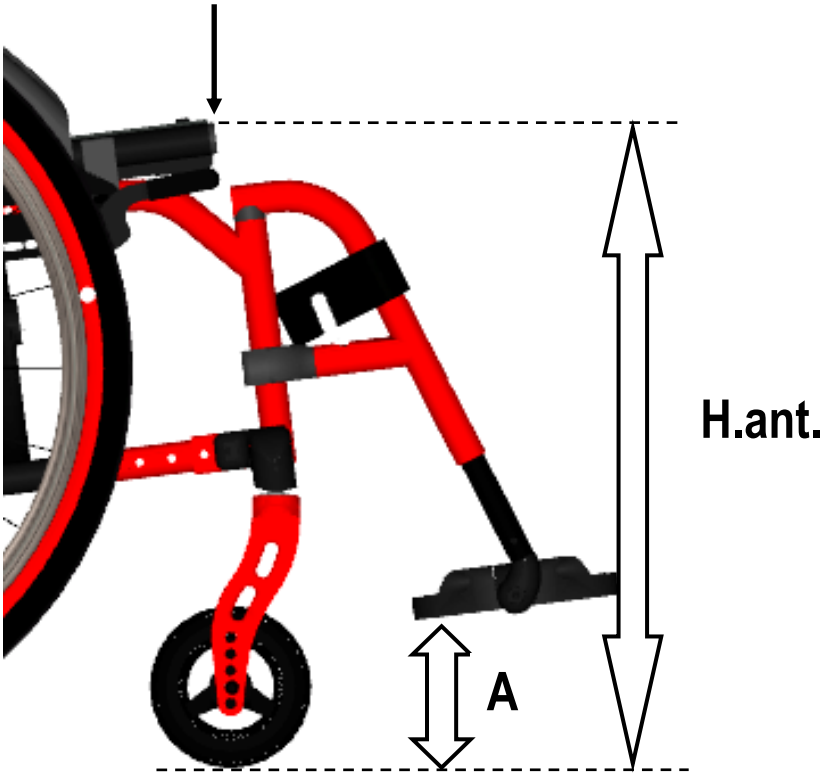
Available for widths 39, 42, 45, 48

If gives further resistance to the supporting structure of the wheelchair.

It is recommended for heavy users who also use the wheelchair in a quite active way.

FRONT HEIGHT (H. ant.)

The distance between the front side of the seat canvas
(not of the cushion) and the ground
from 45 to 56 cm



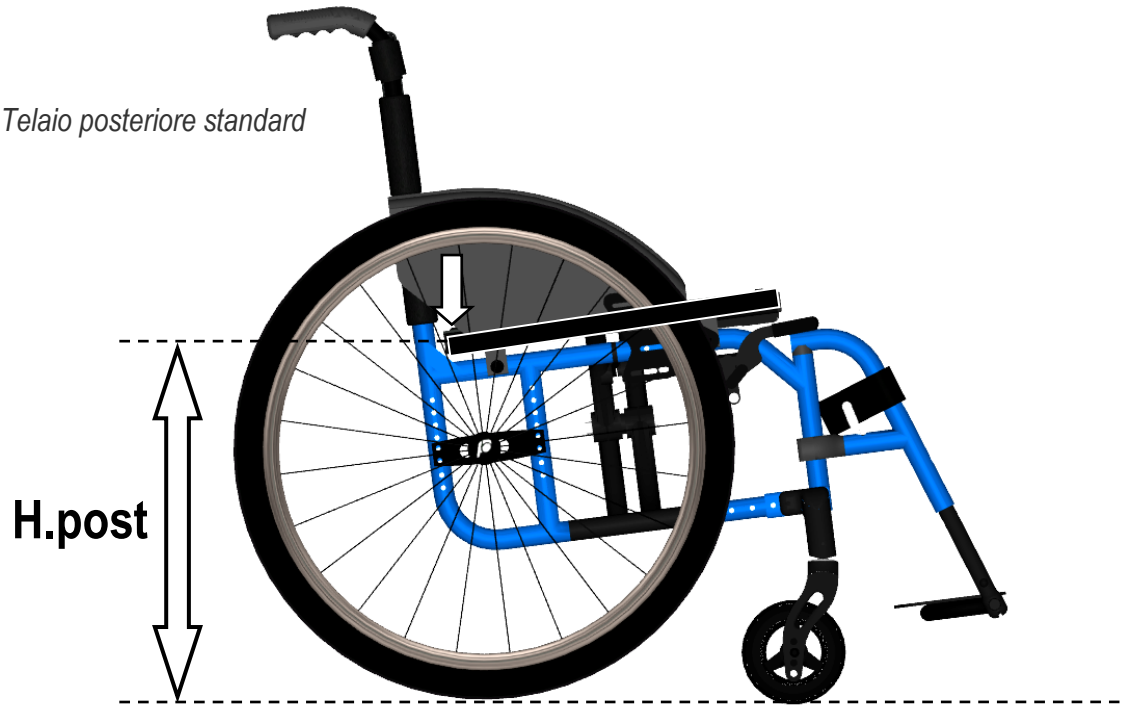
Check the footplate distance and remember that the front height should be at least 4-5 cm greater to allow for enough room **A** between the footplate and the ground.

The front height, in combination with the rear height, determines the seat inclination.

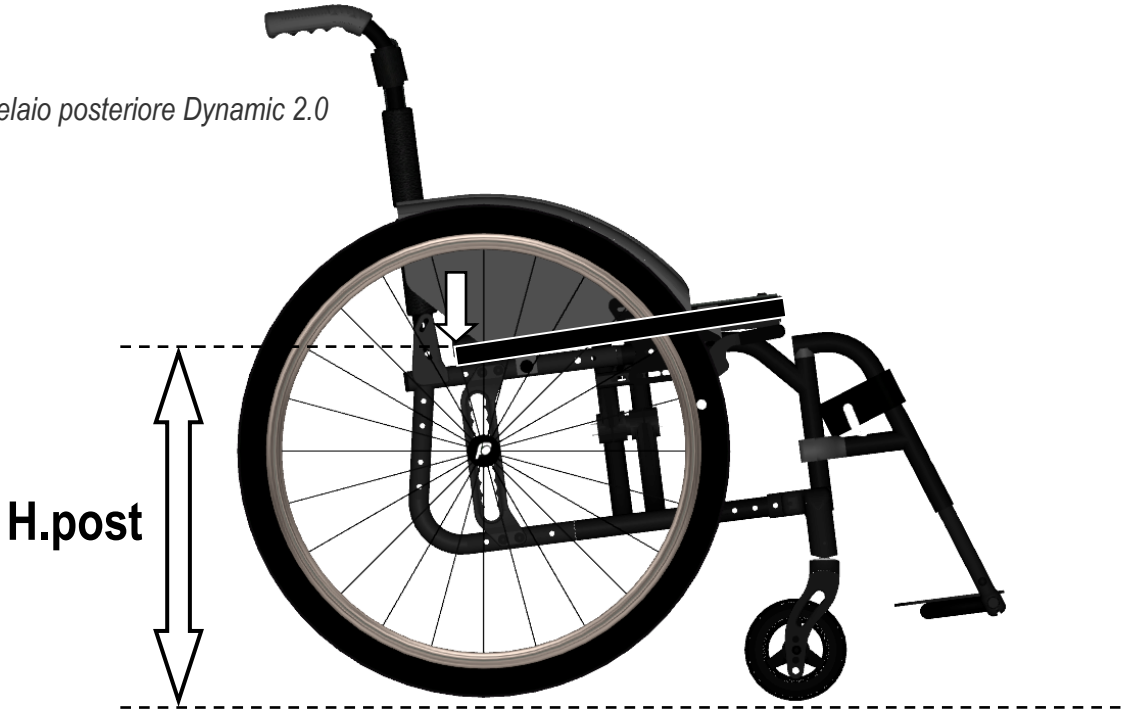
REAR HEIGHT (h. post.)

The distance between the rear side of the seat canvas
(not of the cushion) and the ground
from 38 to 47 cm (with 24” rear wheels)

Telaio posteriore standard



Telaio posteriore Dynamic 2.0



The rear height, in combination with the front height, determines the seat inclination.

MEASUREMENT GUIDE

HAND RIM DISTANCE

The distance between the wheel rim and the hand rim

3 or 4 cm

In the order form you can choose the hand rim at 3 or 4 cm from the wheel rim.

That measure can change by several millimetres according to the type of hand rim, but, in any case, the difference between the two positioning is approximately 1 cm.

Notes
The Ergopara hand rim has only one positioning.
The rear wheel Spinergy Flex Rim has an integrated hand rim.

Hand rim at 3 cm

Hand rim at 4 cm

MEASUREMENT
GUIDE

CAMBER

The angle of the rear wheels

With cambered rear wheels, the wheelchair improves in manoeuvrability and in side stability, but it becomes wider.

Seat width (LS) + 17 cm

Minimum encumbrance with fixed side guards (not spaced), standard rear wheels, hand rims at 3 cm.

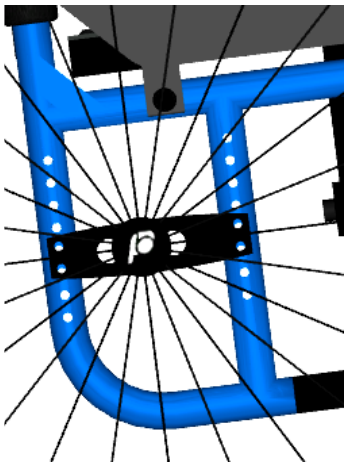
with 1.5°:	LS + 19 cm
with 2°:	LS + 20 cm
with 3°:	LS + 21 cm
with 4°:	LS + 23 cm

The encumbrances indicated take as reference the configuration with fixed side guards (not spaced), standard rear wheels and hand rims at 3 cm.

Such values may change according to the final configuration of the wheelchair.

REAR FRAME

Standard, Dynamic 2.0, Titanium

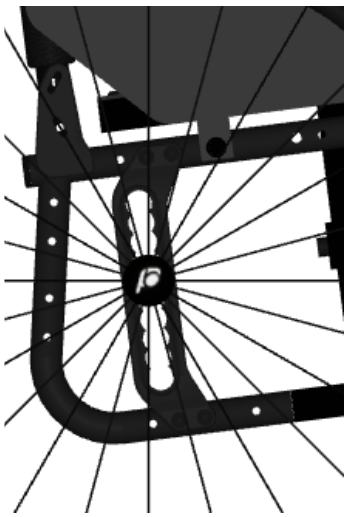


STANDARD IN ALUMINIUM

Available in different colours.

Backrest tube welded at 90° with respect to the seat.

Rear wheel camber 0°, 1.5° and 3° by tilting the wheel plate.

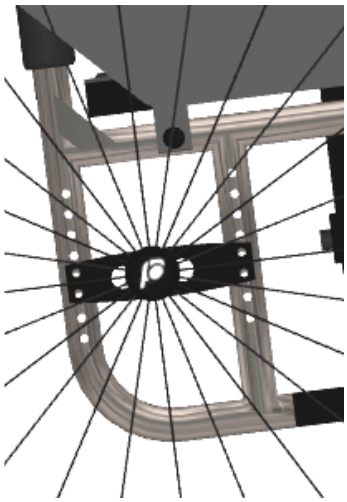


DYNAMIC 2.0 IN ALUMINIUM

Available only in opaque black.

Backrest tube adjustable from 81° to 99° with respect to the seat.

Rear wheel camber 0°, 2° and 4° with wheel receivers with tilted hole.



IN TITANIUM

Frame in natural brushed titanium

It can be brushed again with a fine abrasive sponge.

Backrest tube welded at 90° with respect to the seat.

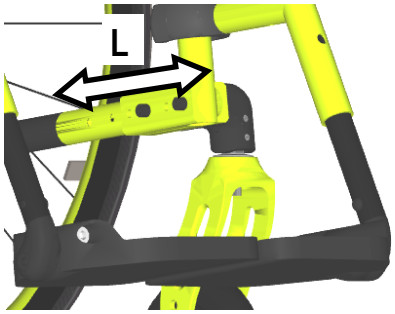
Rear wheel camber 0°, 1.5° and 3° by tilting the wheel plate.

The choice of titanium only regards the rear frame, in fact, the front frame and the foot-plate frame are available in aluminium only.

FRONT FRAME

short , medium, long

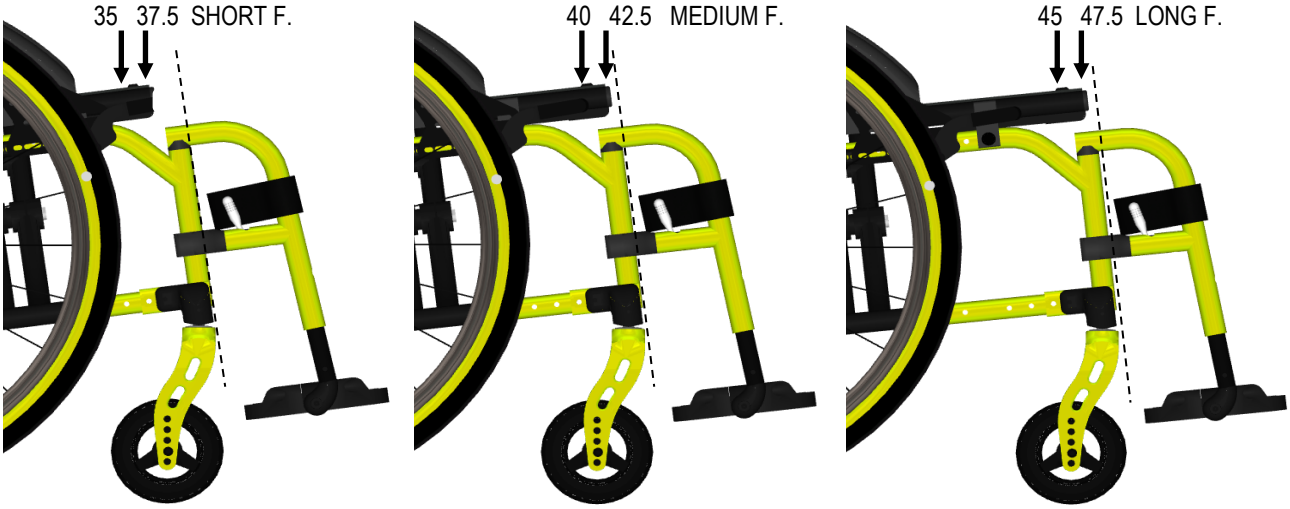
95° 110° 120°



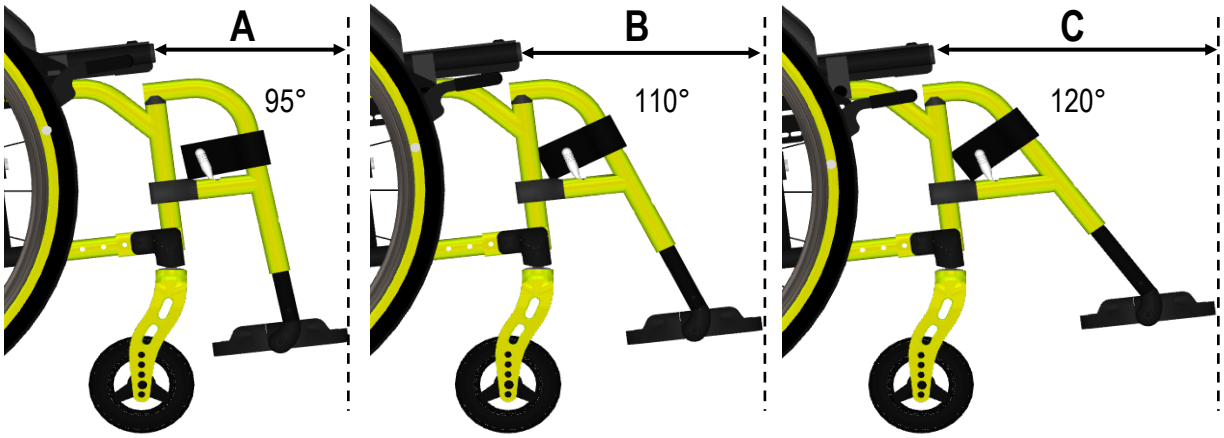
In the order from, it is suggested an “ideal” frame according to the seat depth, but you can also choose the length **L** regardless the seat depth.

Short frame	**L** = 13.0 cm
Medium frame	**L** = 15.5 cm
Long frame	**L** = 20.5 cm

“Ideal” configurations with 95° frame angle. The angles 110° and 120° follow the same logic.



Frame angles: 95° 110° 120°



Under the same seat depth and frame length of the wheelchair, the horizontal difference between the frames is approximately:

B - A = 4 cm with DP 35 cm	5 cm with DP 40 cm	6 cm with DP 45 cm
C - B = 4 cm with DP 35 cm	5 cm with DP 40 cm	6 cm with DP 45 cm
C - A = 8 cm with DP 35 cm	10 cm with DP 40 cm	12 cm with DP 45 cm

DP = footplate distance

Follows next page

MEASUREMENT GUIDE

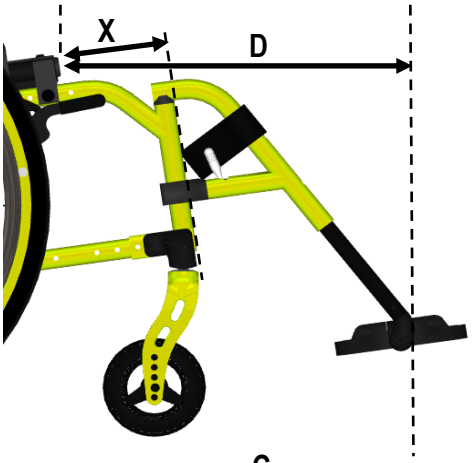
FRONT FRAME

short , medium, long

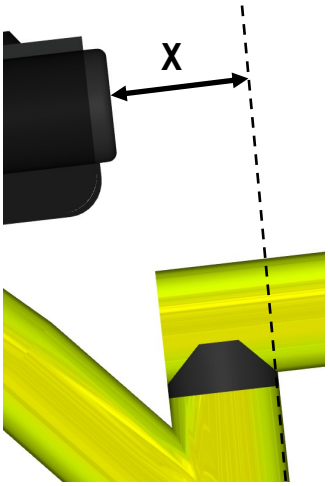
100° 110°

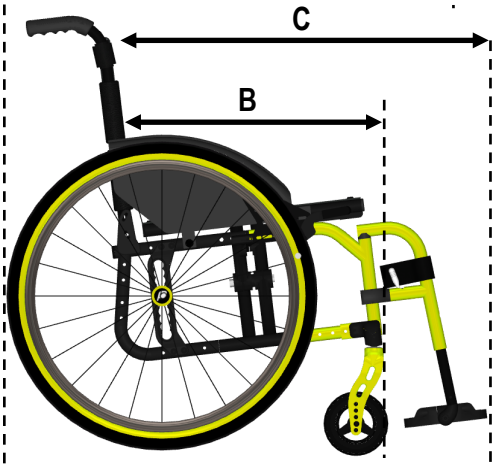
The frame of the wheelchair is independent from the seat depth, therefore, you can have a front side different from the “ideal” one. Hereafter, you can see the two extreme configurations.
According to the combination “seat depth PS / frame length / frame angle”, the front side of the wheelchair develops a certain distance **D** between the front side of the seat canvas and the outer side of the footplate tube.
Furthermore, **X** indicates the distance between the front side of the seat canvas and the vertical line of the fixed front frame and you can also notice

PS 35 cm, LONG FRAME, 120°

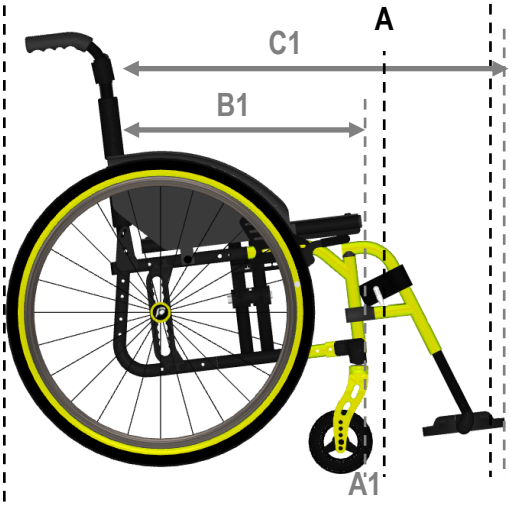


PS 47.5 cm, SHORT FRAME, 95°





PS 42.5 cm
MEDIUM FRAME
ANGLE 95°



PS 42.5 cm
SHORT FRAME
ANGLE110°

So, for each PS you can choose any frame length.
The line of the fixed front frame also determines the point **A** the user has to be beyond while making a side transfer.

The length **B** between the point **A** is clearly shorter with the short frame and, should that be necessary, you may develop, when possible, a frame that still gives a suitable support for the user’s feet by choosing a wider frame angle so that the length **C** is approximately the same.

In the example here aside, the point **A1** is 2,5 cm behind **A**, consequently, **B1** is 2.5 cm shorter than **B.**
C1, finally, is just a little longer than **C**.

Even the type of footplate and its possible positions can be involved on this valuation.

Follows next page

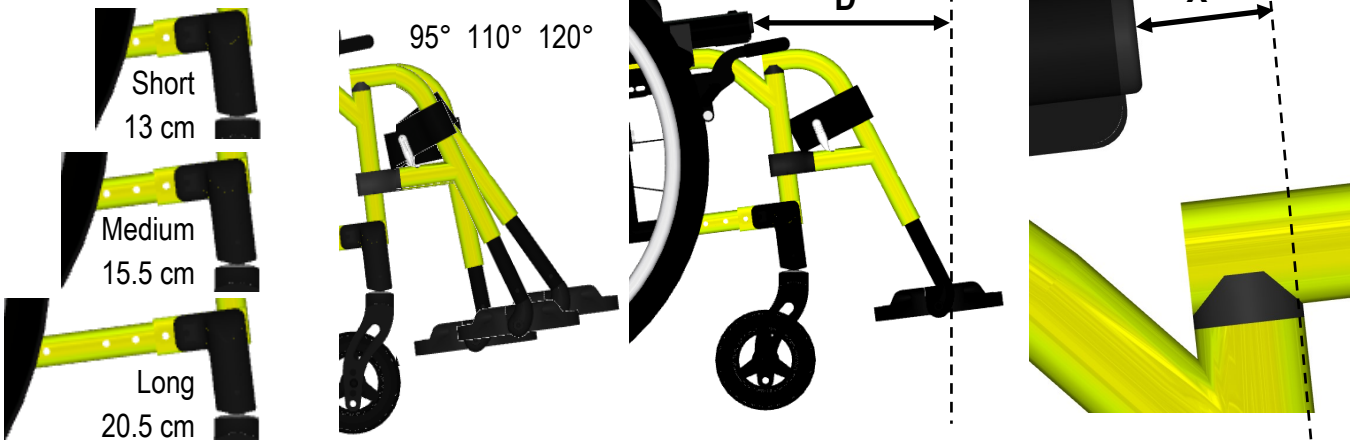
MEASUREMENT GUIDE

FRONT FRAME

short , medium, long

95° 110° 120°

As we earlier said, for each PS you can choose any frame length.
The chart here below reports the values of the distances **X** and **D** for all combinations.
The values on grey background refers to the suggested "ideal" frame.

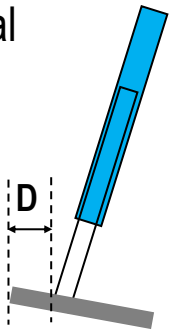


Distance **X** / Distance **D** (with DP = 40 cm)		Seat depth **PS** 35		37,5		40		42,5		45		47,5	
		X	**D**	**X**	**D**	**X**	**D**	**X**	**D**	**X**	**D**	**X**	**D**
Frame 95°	SHORT	**5,5**	**23**	**3**	**20.5**	0,5	17.5	- 2	15	- 4,5	12.5	- 7	10
	MEDIUM	8	25,5	5,5	23	**3**	**20**	**0,5**	**17.5**	- 2	15	- 4,5	12.5
	LONG	13	30,5	10,5	28	8	25	5,5	22.5	**3**	**20**	**0,5**	**17.5**
Frame 110°	SHORT	**5,5**	**28**	**3**	**25.5**	0,5	22,5	- 2	20	- 4,5	17.5	- 7	15
	MEDIUM	8	30.5	5,5	28	**3**	**25**	**0,5**	**22,5**	- 2	20	- 4,5	17.5
	LONG	13	35.5	10,5	33	8	30	5,5	27,5	**3**	**25**	**0,5**	**22.5**
Frame 120°	SHORT	**5,5**	**22**	**3**	**25.5**	0,5	23	- 2	20,5	- 4,5	21.5	- 7	19
	MEDIUM	8	24.5	5,5	28	**3**	**25,5**	**0,5**	**23**	- 2	26.5	- 4,5	24
	LONG	13	29.5	10,5	33	8	30,5	5,5	28	**3**	**29**	**0,5**	**26.5**

The values on this chart are indicative and they consider a footplate distance DP 40 cm.
With a good approximation, 5 cm DP increase (if longer) or reduce (if shorter) the values of the distance **D** only reported on this chart by 1 cm with 95° frame, 2 cm with 110° frame angle or 3 cm with 120° frame angle (the values of **X** remain the same).
This measure takes as reference the perpendicular line to the ground and not the line parallel to the frame, therefore, this measure can change according to the seat inclination, too.

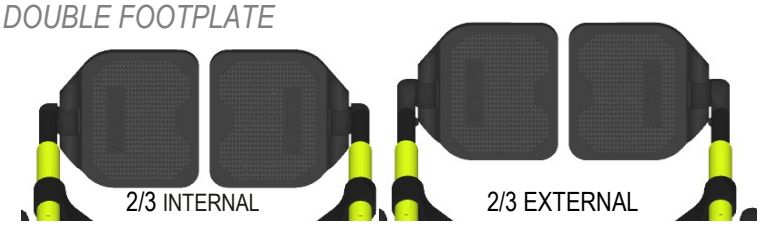
FOOTPLATES

Internal, 2/3 internal, 2/3 external, external



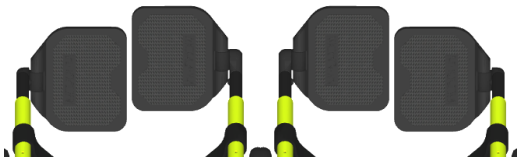
All footplates are adjustable in height, angle and position.
In this section, we indicate all different positions for each model of footplate and the offset **D** from the line of the outer side of the footplate tube to the external part of the plate.

DOUBLE FOOTPLATE



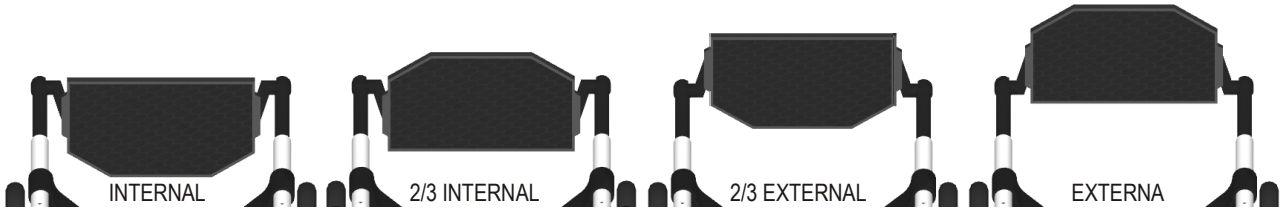
2/3 INTERNAL
D ≈ 6.0 cm

2/3 EXTERNAL
D ≈ 9.5 cm



On specific request, not present in the order form, you may ask for one plate 2/3 int. and the other 2/3 ext..

ONE-PIECE FLIP-UP PLASTIC FOOTPLATE



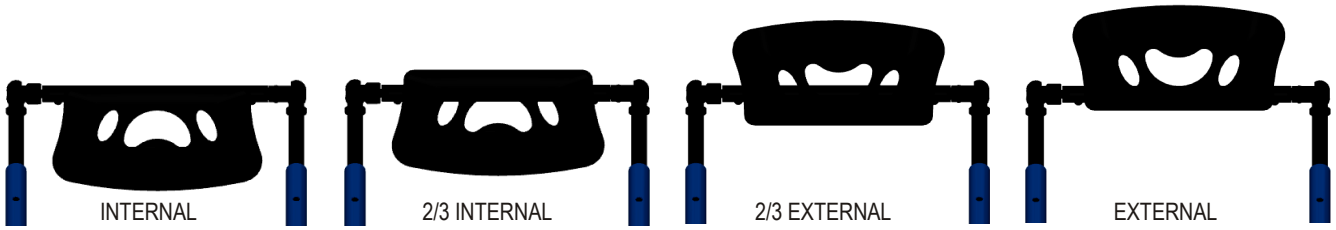
INTERNAL
D ≈ 0 cm

2/3 INTERNAL
D ≈ 4.5 cm

2/3 EXTERNAL
D ≈ 7.5 cm
Not present in the order form

EXTERNA
D ≈ 11.5 cm

ONE-PIECE FLIP-UP ALUMINIUM FOOTPLATE



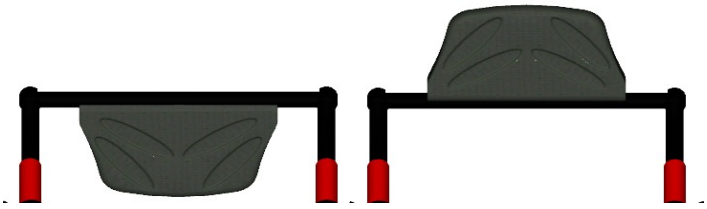
INTERNAL
D ≈ 0 cm

2/3 INTERNAL
D ≈ 2.5 cm

2/3 EXTERNAL
D ≈ 9.5 cm

EXTERNAL
D ≈ 11.5 cm

ONE-PIECE FLIP-UP CARBON FOOTPLATE



INTERNAL
D ≈ 0 cm

EXTERNAL
D ≈ 11 cm

MEASUREMENT GUIDE

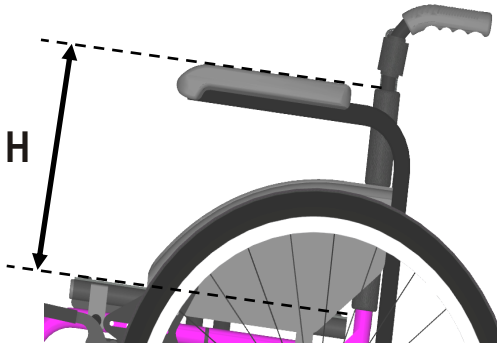
ARMREST HEIGHT

The distance from the seat canvas (not of the cushion) to the upper side of the pad

The choice of the height of the armrest is not present in the order from, but you can write a note indicating the measure you need, unless the armrest are height adjustable with no tool. Without any note, the armrests are assembled at a height we believe suitable.

The minimum height of the armrest may depend on the rear height of the wheelchair.

For each armrest, it is indicated the minimum total width LT according to the seat width LS, considering standard rear wheels, hand rim at 3 cm and 0° camber.
See also *"total width of the wheelchair (LT)".*



TUBULAR STANDARD WITH ALUMINIUM SUPPORT

Swing away and removable
Adjustable only with tools.

LT = LS + 17 cm

DESK

Removable
Adjustable without tools.
H. min. 24.5 cm
H. max. 34.5 cm

LT = LS + 20 cm

TUBULAR WITH STEEL SUPPORT AND SAFETY LOCK

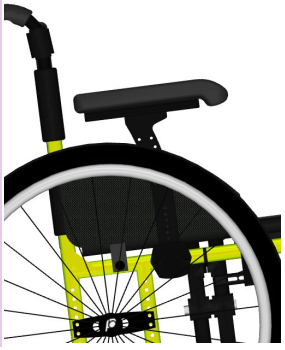
Swing away and removable
Adjustable only with tools.

LT = LS + 17 cm

FLIP-UP

Swing away and removable
Adjustable without tools.
H. min. 20.5 cm
H. max. 28.5 cm

LT = LS + 20 cm



REMOVABLE WITH A BLADE SYSTEM

Removable
Adjustable only with tools.
H. min. 18 cm
H. max. 24 cm

LT = LS + 17~18* cm
(* con altezza posteriore bassa)

PROGEO REMOVABLE

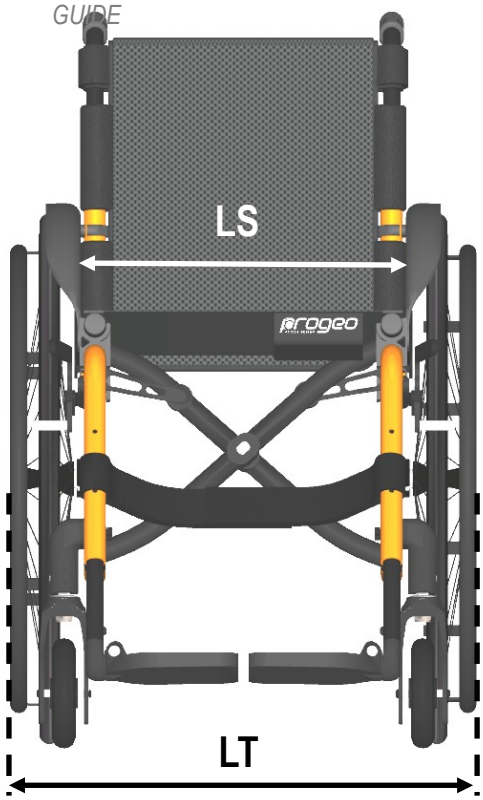
Removable
Adjustable without tools.
H. min. 23.5 cm
H. max. 34 cm

LT = LS + 19 cm

MEASUREMENT GUIDE

TOTAL WIDTH OF THE WHEELCHAIR (LT)

The distance between the outer side of the hand rims



The minimum total width of the wheelchair LT clearly depends on the seat width LS, but also on other parameters and components.

In standard configuration, with standard rear wheels, hand rims at 3 cm, 0° camber and fixed side guards (not spaced):

LT = LS + 17 cm

This is the minimum LT

Now, we list parameters and components that increase the total width of the wheelchair, indicating the extent of the increment.

CAMBER 1.5°	+ 2 cm
CAMBER 2°	+ 3 cm
CAMBER 3°	+ 4 cm
CAMBER 4°	+ 6 cm
HAND RIM DISTANCE 4 cm	+ 2 cm
SPINERGY WHEELS (LX—LXL)	+ 1 cm
OFF ROAD WHEELS	+ 5 cm
FAT WHEEL	+ 12 cm
WHEELS WITH DRUM BRAKE	+ 4 cm
WHEELS WITH ONE ARM DRIVE (from the hand rim to the hub of the other wheel)	+ 1 cm
REMOVABLE SIDE GUARDS (* with low rear height)	+ 0~1* cm
REMOVABLE ARMRESTS (BLADE SYSTEM) (* con altezza posteriore bassa)	+ 0~1* cm
DESK ARMREST	+ 3 cm
FLIP-UP ARMREST	+ 3 cm
PROGEO REMOVABLE ARMRESTS	+ 2 cm

The values refers to each case individually with reference to the minimum LT; according to the final configuration of the wheelchair, some cases may be concomitant, but the total width may not be equal to the sum of the corresponding values. All values are to be consider indicative.

MEASUREMENT GUIDE

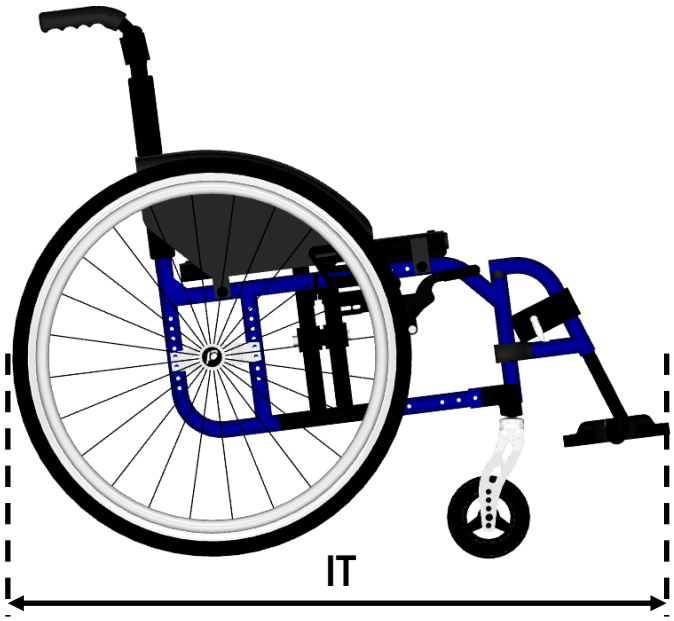
TOTAL LENGTH OF THE WHEELCHAIR (IT)

The distance from the rearmost point of the rear wheels to the external side of the footplate

The total length IT of the wheelchair depends on several parameters.
To have a first evaluation of the total length, the following chart helps to make a quick calculation with a good tolerance, starting from the standard configuration for each of the 9 frame variants.

The standard configuration has these values:

- 6° seat inclination (height 49/44 with PS 40)
- Standard setting (point of balance)
- 24" rear wheels
- Footplate distance DP 40 cm
- Double footplate position: 2/3 internal.



ANGLE **95°**			ANGLE **110°**			ANGLE **120°**		
SHORT	MEDIUM	LONG	SHORT	MEDIUM	LONG	SHORT	MEDIUM	LONG
88.5 cm	91 cm	96 cm	91.5 cm	97 cm	102 cm	99.5 cm	102 cm	107 cm

Change of the length with respect to the standard configuration.

	Value	Increment		Value	Reduction	
Seat inclination	10°	+ 3 cm		0°	- 3 cm	
Setting	Prudential	+ 2 cm		Extreme Active	- 4 cm	- 2 cm
Rear wheels	26" 25"	+ 2.5 cm	+ 1.25 cm	22"	- 1.25 cm	
Footplate distance DP	50 45 angle 95°	+ 2 cm	+ 1 cm	35 30 angle 95°	- 1 cm	- 2 cm
	50 45 angle 110°	+ 4 cm	+ 2 cm	35 30 angle 110°	- 2 cm	- 3 cm
	50 45 angle 120°	+ 6 cm	+ 3 cm	35 30 angle 120°	- 3 cm	- 6 cm
Double footplate position	2/3 external	+ 3.5 cm				
One-piece plastic footplate position	External	+ 5 cm		Internal	- 6 cm	
	2/3 external	+ 1.5 cm		2/3 internal	- 1.5 cm	
One-piece aluminium footplate position	External	+ 5 cm		Internal	- 6 cm	
	2/3 external	+ 3.5 cm		2/3 internal	- 3.5 cm	
Other footplates	See chapter "footplate position"			See chapter "footplate position"		

Examples:
Medium frame 110°(97), prudential (+2), double footplate 2/3 external (+3.5): **IT** = 97 + 2 + 3.5 = 102.5 cm
Long frame 95°(96), active (-2), 26" wheels (+2.5), DP 45 (+1), one-piece aluminium footplate internal (-6): **IT** = 96 - 2 + 2.5 + 1 – 6 = 91.5 cm