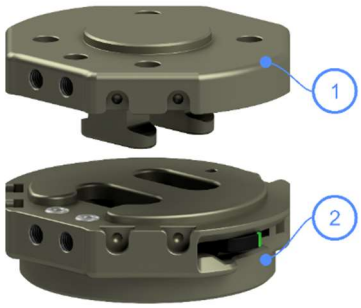
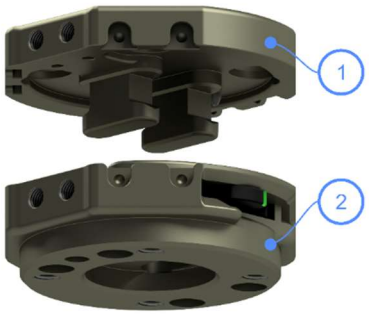
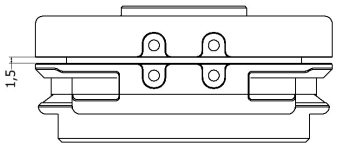
Datasheet - TOOL CHANGER

PICTURES AND DRAWINGS

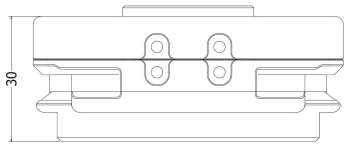




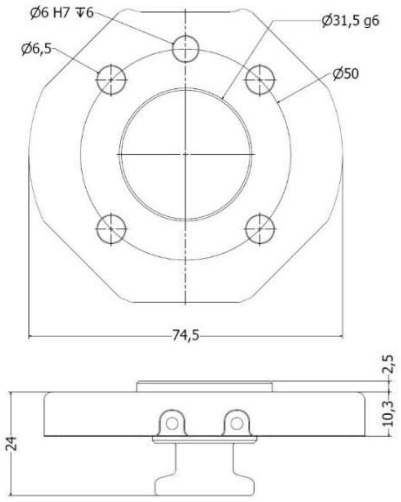
Maximum couple distance in automatic use



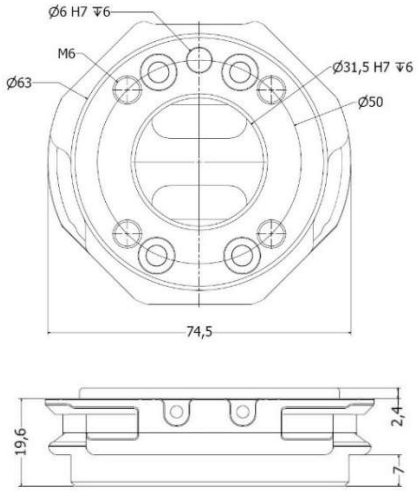
Assembled height



Robot part WM1-P-01-01



Tool part WM1-P-02-01



PART NUMBERS

Pos.:	Part no.:	Description:	Interfaces with:
1	WM1-P-01-01	Robot part including: 4 pcs. screws M6x12mm ISO 10642 1 pcs. positioning pin 6mmH6	Pos.: 2, 4A, 5A, 6A
2	WM1-P-02-01	Tool part	Pos.: 1, 3, 4B, 5B, 6B
	WM1-S-01-01	Spare part kit for Tool part WM1-P-02-01 including 2 pcs. levers, 4 pcs. bearings, 4 pcs. Springs and 4 pcs. pins.	Pos.: 2

TECHNICAL DATA

Weight, tool changer assembled:	260 g
Rated payload*:	33 kg
Tool changer assembly height:	30 mm
Repeatability:	+-0,03 mm
Pass-trough, pneumatic build in and suggested push-in fittings (not included):	2 x M5 pneumatic (max 10 bar) Festo 133004 or Festo 153333
Pass-trough, modules:	3 sets can be fitted
Material:	Surface treated aluminum
Interface flanges on *robot part* and *tool part*:	ISO 9409-1-50-4-M6

* The rated payload is based on the payload's center of gravity being 100 mm from the center of the tool changer, a dynamic force of maximum 2G and a safety factor of 5. Maximum allowed payload must always be calculated for the application.

Tool Changer

Part no.: WM1-P-01-01
 
Part no.: WM1-P-01-02
 

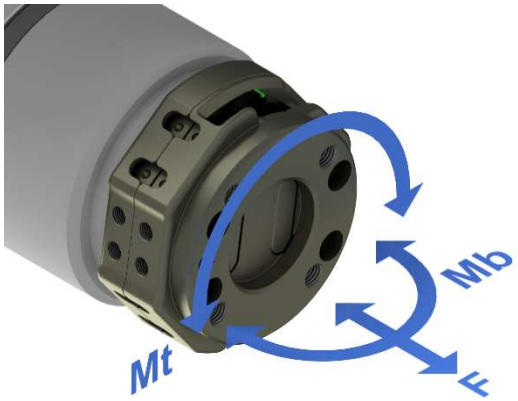
STATIC LOAD LIMITS

The WINGMAN Tool Changer has a proven *breaking load* at 20,77 kN (2.150 kg) and a *yield load* at 14 kN (1.425 kg) in direction, F.

The *maximum allowed static load* calculation is based on a theoretical *minimum yield load* at 12 kN.

When evaluating a robot application, first determine the *maximum allowed static loads* for F,max; Mb,max and Mt,max that apply for your application by choosing a *safety factor(S)* and look up in beneath table.

For *safety factor(S),* use 5 when failure does not pose a risk to human life and use 10 when failure poses a risk to human life.



MAXIMUM ALLOWED STATIC LOAD

Safety factor:	**5**	**10**
F,max:	2400 N	1200 N
Mb,max:	65 Nm	32,5 Nm
Mt,max:	40 Nm	20 Nm

MAXIMUM ALLOWED PAYLOAD CALCULATION

To calculating the *maximum allowed payload* for your application, determine the:

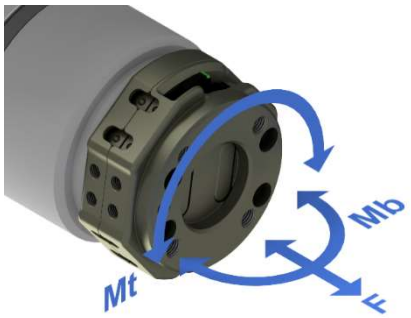
- G,max => Maximum *dynamic forces*.
  To determine the *dynamic forces*(G,max), consult your cobot's documentation to find out the maximum acceleration / deacceleration for your cobot.
- Dmb => Distance (Dmb) from the *tool part* center to the payloads Center of Gravity in meters that causes Mb type torque.
- Dmt => Distance (Dmt) from the *tool part* center to the payloads Center of Gravity in meters that causes Mt type torque.

	F	**Mb**	**Mt**
Maximum allowed payload =	F,max / G,max / 9,82	Mb,max / G,max / Dmb / 9,82	Mt,max / G,max / Dmt / 9,82
Maximum allowed payload EXAMPLE = • Safety factor 5 = 2400N, 65 Nm & 40 Nm • Maximum dynamic force, G,max = 2. • Distance, Dmt = 0,05 m. • Distance, Dmb = 0,1 m.	2400 N / 2 / 9,82 = 122 Kg	65 Nm / 2 / 0,1 m / 9,82 = 33 Kg	40 Nm / 2 / 0,05 / 9,82 = 40 kg
Maximum allowed payload EXAMPLE RESULT =	The **lowest relevant** calculated value for F, Mb and Mt determines the *maximum allowed payload*. In case that the cobot only moves the payload in only one axis that results in only F type load on the tool changer: *Maximum allowed payload* = 122 kg. In case that the cobot moves the payload in directions that results in F, Mb and MT type loads on the tool changer: *Maximum allowed payload* = 33 kg.		

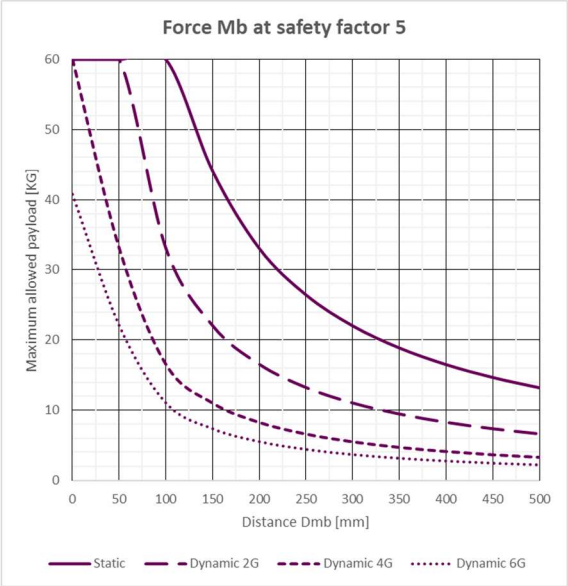
Alternatively, to calculating the *maximum allowed payloads* for a robot application, the *maximum allowed payloads* can be determined from the graphs on the next page.

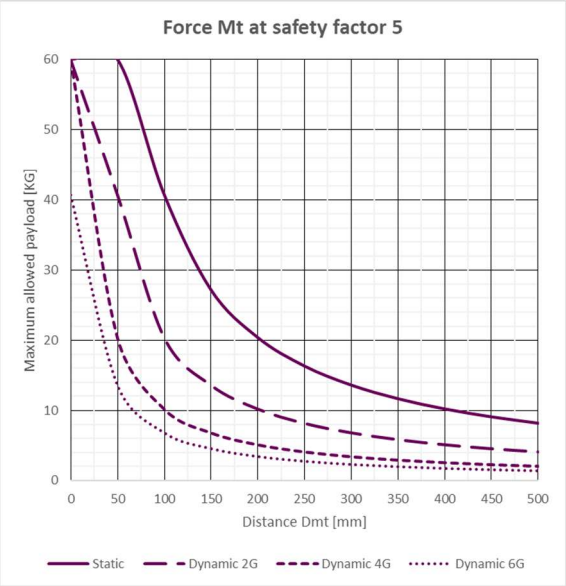
MAXIMUM ALLOWED PAYLOAD GRAPHS

For *safety factor(S),* use 5 when failure does not pose a risk to human life and use 10 when failure poses a risk to human life.



SAFETY FACTOR 5





SAFETY FACTOR 10