



qbrobotics®

qbrobotics.com

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scan the QR code below  
for further information  
about the qb SoftHand



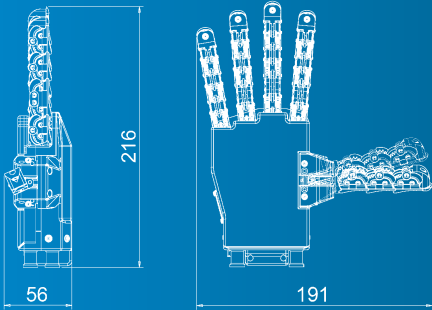
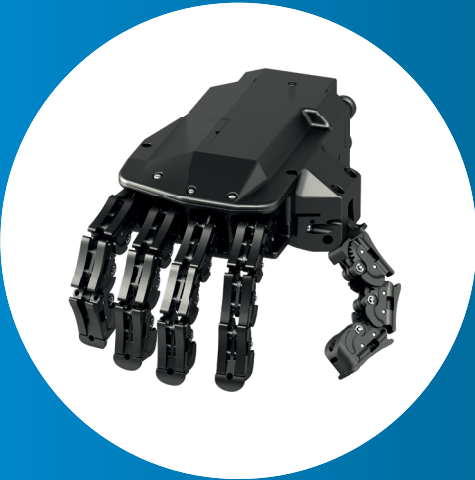
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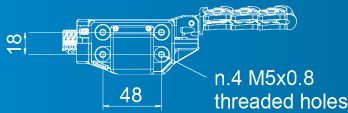
qb SoftHand  
RESEARCH

datasheet





mechanical interface (millimeters)



## technical data

### MECHANICAL

|                 |              |      |               |      |               |      |
|-----------------|--------------|------|---------------|------|---------------|------|
| weight          |              | [kg] | 0.5           |      |               |      |
| fingers         | number       | [#]  | 5             |      |               |      |
| joints          | total        | [#]  | 19            |      |               |      |
|                 | rigid        | [#]  | 5             |      |               |      |
|                 | mobile       | [#]  | 14            |      |               |      |
| motors          | DC brushed   | [#]  | 1             |      |               |      |
| nominal payload |              |      | pinch config. |      | power config. |      |
|                 |              |      | nom           | peak | nom           | peak |
|                 | power grasp  | [kg] | 1.7           | 1.7  | 1.9           | 2.6  |
|                 | pinch grasp  | [kg] | 0.83          | 0.83 | -             | -    |
|                 | hanging      | [kg] | 20            | 20   | 20            | 20   |
| max grasp force | power grasp  | [N]  | 62            | 75   | 84            | 106  |
|                 | pinch grasp  | [N]  | 11            | 11   | -             | -    |
| cycle time      | full closing | [s]  | 1.1           |      |               |      |
|                 | full opening | [s]  | 1.1           |      |               |      |
| duration        | n. of cycles | [#]  | 50000         |      |               |      |

### RESILIENCE

|           |              |       |     |
|-----------|--------------|-------|-----|
| 1 finger  | impact speed | [m/s] | 4.7 |
| 4 fingers | impact speed | [m/s] | 4.7 |
| 5 fingers | impact force | [N]   | 200 |

### ELECTRICAL

|                                     |                     |     |      |      |
|-------------------------------------|---------------------|-----|------|------|
| power consumption                   | nominal             | [W] | 30   | 30   |
|                                     | motionless          | [W] | 1.1  | 1.4  |
| starting current                    |                     | [A] | 11.8 | 6.51 |
| current limit at nominal conditions | nominal, anom       | [A] | 1.5  | 0.75 |
|                                     | max. operation time | [s] | 300  | 300  |
|                                     | max. duty cycle     | [%] | 69   | 69   |
| current limit at peak conditions    | peak, apeak         | [A] | 2.2  | 1.1  |
|                                     | max. operation time | [s] | 20   | 20   |
|                                     | max. duty cycle     | [%] | 56   | 56   |

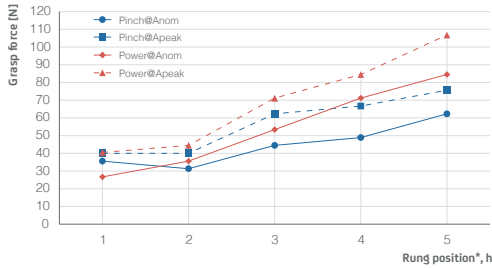
### CONTROL

|          |                               |
|----------|-------------------------------|
| comp.    |                               |
| feedback | motor position, motor current |

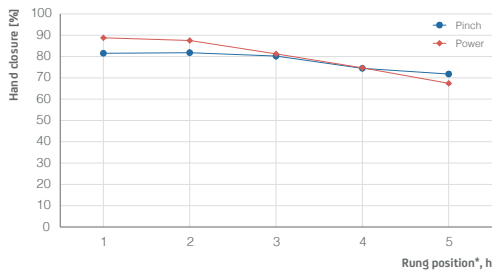
## additional technical data

### GRASP FORCE

maximum values of nominal and peak grasp forces



hand closure percentage vs dynamometer rung level\*



\*Tests have been carried out using: Commander Echo grip tester CM306

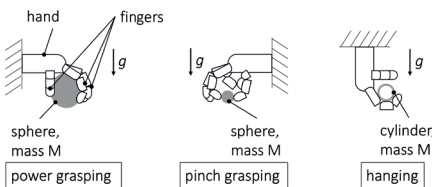
spheres and cylinders:  
15-30-45-60-75-90 [mm];

cylinders height:  
150 [mm];

friction factor:  
0,8±0,1 (materials: hand rubber glove/ABS plastics);

nominal payload is intended as 75% of the maximum payload value obtained for each type of grasp.

definition of the payload tests



### RESILIENCE

|           |               |     |    |
|-----------|---------------|-----|----|
| 1 finger  | impact energy | [J] | 98 |
| 4 fingers | impact energy | [J] | 98 |
| 5 fingers | impact energy | [J] | 19 |

### SENSOR

|         |            |                          |
|---------|------------|--------------------------|
| encoder | type       | absolute magnetic rotary |
|         | resolution | [deg] 360/8192           |
|         | range      | [tick] 0 - 19000         |

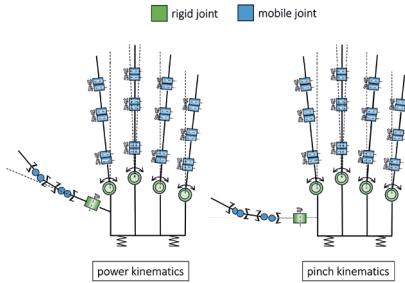
### CONFIGURATIONS

|                    |              |
|--------------------|--------------|
| closure kinematics | pinch, power |
| chirality          | left, right  |
| nominal voltage    | 12 V, 24 V   |
| colors             |              |

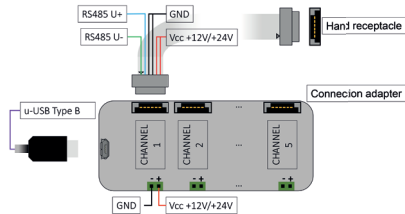
### ACCESSORIES AND OPTIONALS

|                  |                                                                  |
|------------------|------------------------------------------------------------------|
| manual interface |                                                                  |
| flanges          | ISO 9409-1-31.5-4-M5<br>ISO 9409-1-40-4-M6<br>ISO 9409-1-50-4-M6 |
|                  | qbmoves mechanical interface                                     |
| software         | closure force estimation                                         |

kinematics of the hand

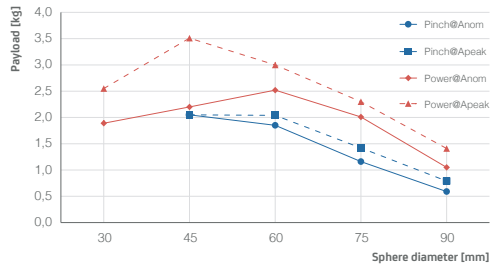


electrical connections

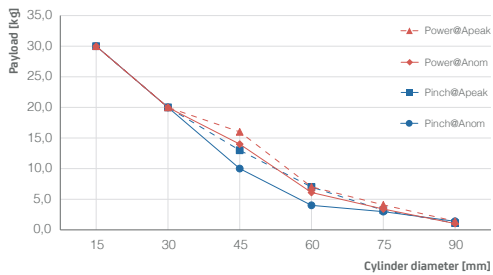


### PAYLOADS CHARTS

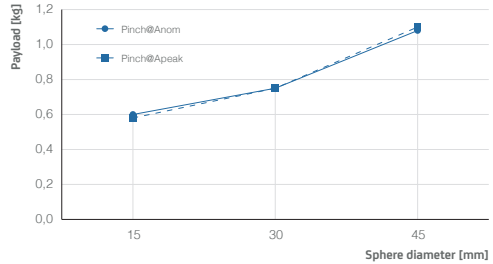
power grasp payloads at nominal and peak current



hanging payload on cylinders at nominal and peak current



pinch grasp payload on spheres at nominal and peak current



## applications

