

**MOTOR
POWER**
COMPANY



SEE IT **BEFORE** IT HAPPENS

GEARLESS
MOTOROLLER
AND PALLET
CONVEYOR

GEARLESS MOTOROLLER AND PALLET CONVEYOR

*Introducing the future
in sorting and material
handling technology*



*Complete
technological
innovation
in movement*

Motor Power Company keeps developing new concepts in sorting and material handling.

Our goal is sharing with the market our domain expertise in intralogistics; innovative solutions through our gearless and geared technology products. We propose motion control bundles composed by gearless motorollers and smart drives.

All our solutions are in-house developed and are particularly oriented for control, movement, storage and protection of materials and products throughout manufacturing, sorting, warehousing, distribution, consumption and disposal.

Motor Power Company specialises in the design, development and manufacturing of high performance industrial motion solutions. We have acquired consolidated expertise and technical know-how from 30 years experience with all kinds of applications and through our continuous commitment to research and development.

This allows us to partner leading international companies in the supply of products and solutions for automation and motion control.



GEARLESS MOTOROLLERS AND DRIVES

Increased efficiency and limitless performances

Motor Power Company introduces these perfect matched bundles constituted by gearless motorollers and smart drives. Everything has been conceived as a specific product for conveyor, crossbelt or any roller transfer systems.

Two versions are proposed; frameless cartridges without tube, to be inserted into the roller to be moved, and power pack version, a ready to use motoroller embedded in its own tube. The technology on which the motor is based comes from the direct drive torque motors. Consequently, the motion is transmitted directly from the motoroller to the load, without any gears.

Motoroller without gears ensures:

> HIGH MTBF

as the motoroller needs less components than the standard kinematic chain

> SYSTEM EFFICIENCY INCREASE

due to the absence of gears inside the motoroller

> ACCURACY

due to the feedback reliability

> HIGH DYNAMIC

thanks to the direct drive technology

> EASY REPLACEMENT

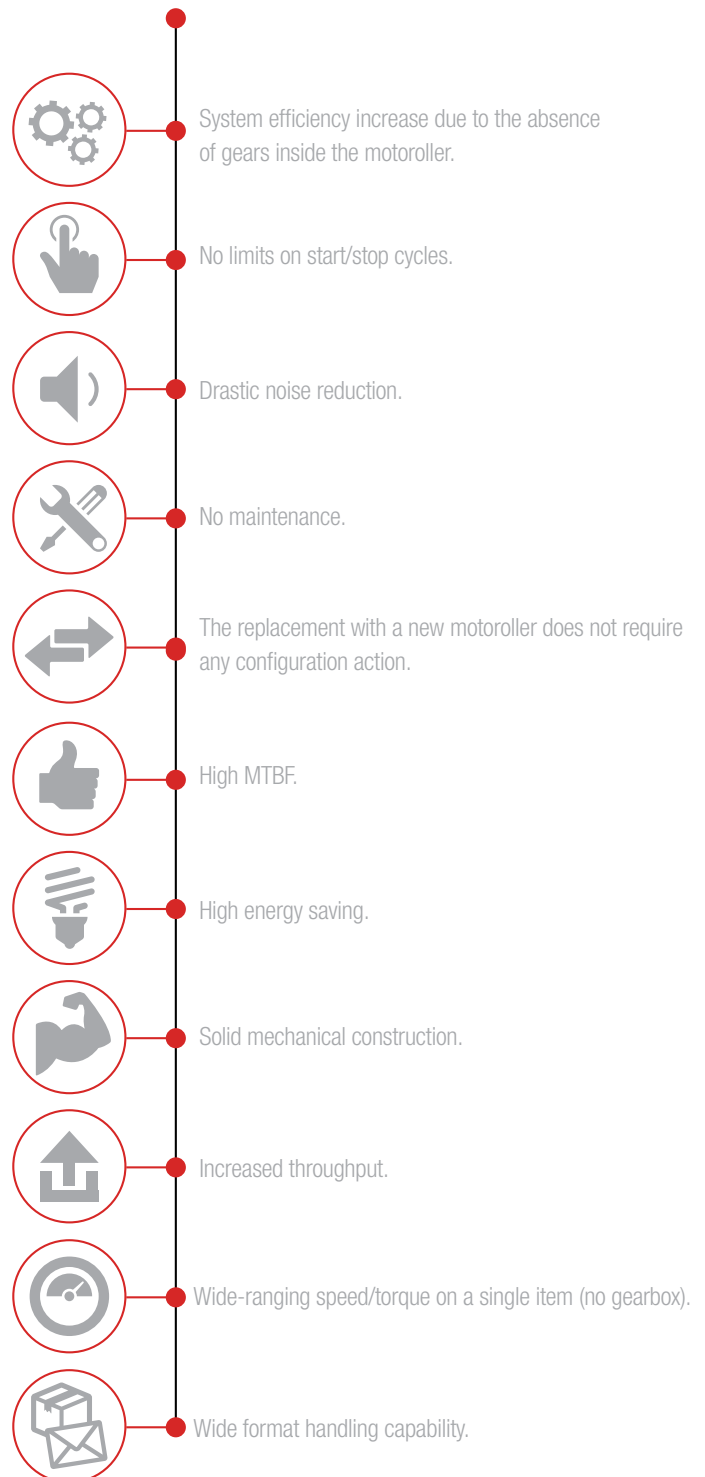
with the autotuning system of DMR Drives, the substitution with a new motoroller does not require any configuration action

> EASY COMMISSIONING

due to a unique part number, there are no different gearbox ratios to handle according to different speed needs

> WIDE SPEED AVAILABILITY

one motoroller for all speed range



THE GEARLESS MOTOROLLER SERIES AT A GLANCE

GEARLESS MOTOROLLER 46 Cartridge version 800rpm@24-48 Vdc

Frameless gearless cartridge motoroller for general conveyor applications. Suitable for 50mm roller tube integration, roller tube range available on request



Features

- » Two models
- » Rated power 50 Watt and 115 Watt
- » Rated torque 0,6 Nm and 1,35 Nm
- » Hall sensors and encoder feedback for higher precision
- » Cartridge diameter 46 mm suitable for all 50 mm diameter tube
- » 24 and 48Vdc power supply
- » Full speed control
- » Wide roller customization

GEARLESS POWER PACK MOTOROLLER 60 800rpm@60 Vdc

Tube equipped gearless motoroller for cross belt driving and controlling



Features

- » Ready to use motoroller 60mm diameter
- » Rated power 235 Watt
- » Rated torque 2,8 Nm
- » 60Vdc power supply
- » Full speed control

GEARLESS MOTOROLLER 76 Cartridge version 800rpm@48-65 Vdc

Gearless cartridge motoroller for cross belt driving and controlling. Suitable for 80mm roller tube integration, roller tube range available on request



Features

- » Rated power 260 Watt
- » Rated torque 3,1 Nm
- » Encoder feedback for higher precision
- » Cartridge diameter 76 mm suitable for all 80 mm diameter tube
- » 48 and 65 Vdc for power supply
- » Full speed control
- » Wide roller customization

THE DRIVE SERIES AT A GLANCE

DMR 50-5/50 DUAL AXES DRIVE



The perfect matched drive for enhancing motoroller 46 features

Features

- » Dual axes operation
- » 24 and 48 Vdc operating supply voltage
- » Encoder and Hall Sensor feedback
- » CanOpen Fieldbus
- » RS485 programming interface
- » I/O programmability for speed, start and stop control

LITE PRO DRIVE



Lite Pro drive is ideal for controlling motoroller 60

Features

- » 24 and 48 Vdc operating supply voltage
- » Encoder and Hall Sensor feedback
- » CanOpen Fieldbus
- » I/O programmability for speed, start and stop control

DMR 76-10/65



Motoroller 76 matches drive DMR 76-10/65 for the perfect bundle

Features

- » 24 and 65 Vdc operating supply voltage
- » Encoder and Hall Sensor feedback
- » Profibus Fieldbus
- » I/O programmability for speed, start and stop control
- » I/O proxy dual loop

»» ***PALLET CONVEYOR MOTOROLLER***

*Geared solution
for driving pallet conveyor
application*



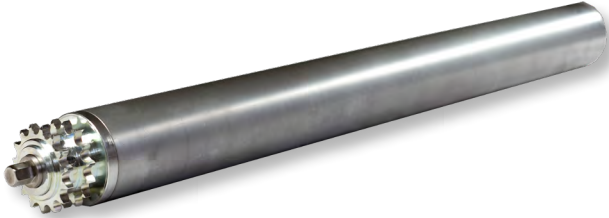
Pallet Conveyor allows efficient transport, accumulation, lifting and sorting of heavy loads as an alternative to forklifts handling. In warehouse automation operations a pallet conveyor is generally utilized to move loads of several hundreds kilograms while ensuring continuous feed of work and cutting edge efficiency. The high-performance synchronous brushless servomotor, coupled with planetary gearbox, ensures performance with loads up to 1500 kg per zone.

- > **ROBUST MECHANICAL DESIGN**
- > **HIGH DYNAMICS**
- > **EASY CONVEYOR DESIGN**
- > **THE REPLACEMENT WITH A NEW MOTOROLLER
DOES NOT REQUIRE ANY CONFIGURATION ACTION**
- > **HIGH MTBF**
- > **HIGH ENERGY SAVING**



PALLET CONVEYOR MOTOROLLER

POWER PACK MOTOROLLER 70



MOTOROLLER geared solution for driving pallet conveyor application

Features

- » Ready to use pallet conveyor motoroller
- » Rated power 265 Watt
- » Planetary gear box ratio 1:35
- » Tube diameter 70mm
- » Conveyor velocity 22,2 m/min (0,37 m/sec)
- » Load up to 1500 Kg
- » Supply voltage available: 48 Vdc, 230 Vac, 400 Vac

POWER PACK MOTOROLLER 89

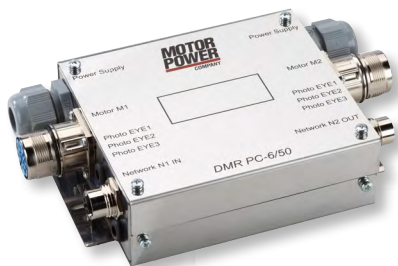


MOTOROLLER geared solution for driving pallet conveyor application

Features

- » Ready to use pallet conveyor motoroller
- » Rated power 400 Watt
- » Planetary gear box ratio 1:45
- » Tube diameter 89mm
- » Conveyor velocity 16,2 m/min (0,27 m/sec)
- » Load up to 1500 Kg
- » Supply voltage available: 48 Vdc, 230 Vac, 400 Vac

DRIVE DMR PC 6/50



DMR PC 6/50 drive allows for the perfect match with the Pallet Conveyor Motoroller 70 and 89, ensuring optimal bundling performance

Features

- » Dual axes operation
- » 48 Vdc operating supply voltage
- » Nominal current 6 A
- » Peak current 15 A
- » Ethercat, Profinet and Ethernet IP Fieldbus
- » 3 photoeyes inputs
- » Digital I/O

**»» *DISCOVER
OUR PRODUCT
RANGE***

MOTOROLLER FRAMELESS - GEARLESS CARTRIDGE ONLY



| | | |
|----------|------------|--|
| 1 | Model | MTR FL 46 MTR FL 76 |
| 2 | Size | MTR FL 46 75 - 140 MTR FL 76 100 |
| 3 | Winding | MTR FL 46 06 (*) - 13 <small>(*) winding 06 for MTR FL 46,75 only</small> MTR FL 76 14 |
| 4 | Feedback | H1 Hall Sensor E1 Incremental encoder ABZ - 3584 cpr |
| 5 | Connection | D0 - cable output with connectors |

MOTOROLLER POWER PACK - GEARLESS MOTOROLLER WITH TUBE

| | | | | | | | | | | |
|--------|------|---------|----------|------------|-------------|-----------|-------------|-------------|----------|-----|
| MTR PP | 76 | 100 | 14 | H1 | D0 | 01 | - | 80 | - | XXX |
| Model | Size | Winding | Feedback | Connection | Fixed shaft | Tube type | Tube length | Indle shaft | Optional | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |



| | | |
|---|----------------------|--|
| 1 | Model | MTR PP 46 MTR PP 60 MTR PP 76 |
| 2 | Size | MTR PP 46 75 - 140 MTR PP 60 150 MTR PP 76 100 |
| 3 | Winding | MTR PP 46 06 (*) - 13 (*) winding 06 for MTR PP 46.75 only MTR PP 60 21 MTR PP 76 14 |
| 4 | Feedback | H1 Hall Sensor E1 Incremental encoder ABZ - 3584 cpr |
| 5 | Connection | D0 - cable output with connectors |
| 6 | Fixed shaft | 01 - Male tread |
| 7 | Tube type(*) | 01 - Standard tube 02 - Double grooved tube 04 - Poly-V pulley tube (**) 05 - Double grooved pulley tube 06 - Tapered sleeves tube 07 - Double grooved and tapered sleeves tube 08 - Poly-V and tapered sleeves tube (**) 09 - Double grooved pulley and tapered sleeves tube (*) for MTR PP 46 only (**) This version is not available for sale in Germany |
| 8 | Tube lenght in mm(*) | Referral "R" on drawings (*) For MTR PP 60 lenght is fixed |
| 9 | Indle shaft(*) | AA: hex spring loaded AB: female thread AC: poly-V hex spring loaded AD: poly-V thread (*) for MTR PP 46 only |

SEE IT BEFORE IT HAPPENS



DMR 50-5/50 DRIVE TYPE

| | | | | |
|------------|---------|----------|----------|-------------|
| DMR | 50-5/50 | E | C | 0 |
| Drive Name | Model | Feedback | Fieldbus | Input logic |
| | 1 | 2 | 3 | 4 |



- 1 Drive model 50-5/50
- 2 Feedback H = Hall sensor
E = Incremental encoder
- 3 Fieldbus C = CANopen
- 4 Input Logic 0 = PNP input
1 = NPN input

DMR 76-10/65 DRIVE TYPE

| | | | |
|------------|----------|----------|----------|
| DMR | 76-10/65 | E | P |
| Drive Name | Model | Feedback | Fieldbus |
| | 1 | 2 | 3 |



- 1 Drive model 76-10/65
- 2 Feedback H = Hall sensor
E = Incremental encoder
- 3 Fieldbus P = Profibus

LITE PRO DRIVE TYPE

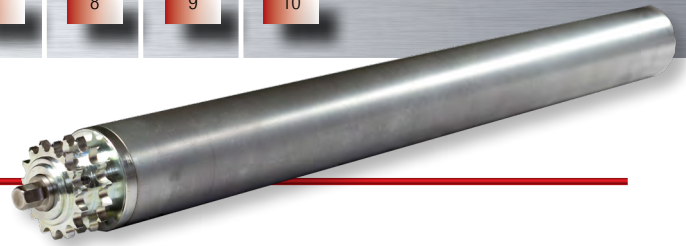
| | | | |
|------------|----------|-------|----------|
| LPRO | E | 40 | C |
| Drive Name | Feedback | Model | Fieldbus |
| | 1 | 2 | 3 |



- 1 Feedback E = Hall sensor and encoder
- 2 Model (output current) Arms 40 = 8/24
- 3 Fieldbus C = CANopen

PALLET CONVEYOR MOTOROLLER POWER PACK

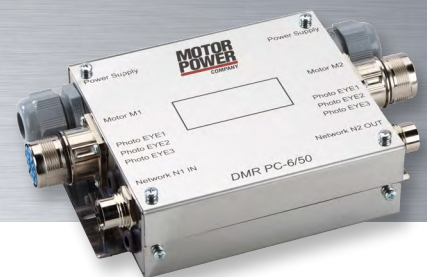
| | | | | | | | | | | |
|--------|------|---------|----------|------------|-------------|-----------|-------------|-------------|----------|-----|
| MTR PP | 89 | 045 | 04 | H1 | D0 | 01 | 01 | 800 | AA | XXX |
| Model | Size | Winding | Feedback | Connection | Fixed shaft | Tube type | Tube length | Indle shaft | Optional | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |



| | | |
|----|-------------|---|
| 1 | Model | MTR PP 70 MTR PP 89 |
| 2 | Size | MTR PP 70 045 MTR PP 89 045 |
| 3 | Winding | MTR PP 70 01 - 04 MTR PP 89 01 - 04 - 15 |
| 4 | Feedback | H1 Hall Sensor |
| 5 | Connection | D0 = cable output with M15 connectors D1 = cable output with M23 connectors D2 = cable output with Harting A0 = cable output with free wires |
| 6 | Fixed shaft | 01 - Male tread |
| 7 | Tube type | 01 - Standard tube |
| 8 | Tube | length in mm See drawings reference "R" letter |
| 9 | Indle shaft | AA: hex spring loaded AB: female thread |
| 10 | Optional | 02 brake |

DMR PC 6/50 DRIVE TYPE

| | | | |
|------------|--------|----------|----------|
| DMR | PC6/50 | H | E |
| Drive Name | Model | Feedback | Fieldbus |
| | 1 | 2 | 3 |



| | | |
|---|-------------|---|
| 1 | Drive model | PC 6/50 |
| 2 | Feedback | H = Hall sensor |
| 3 | Fieldbus | E = Ethercat E I = Ethernet IP P = Profinet |

MOTOROLLER 46 RATINGS AND SPECIFICATIONS

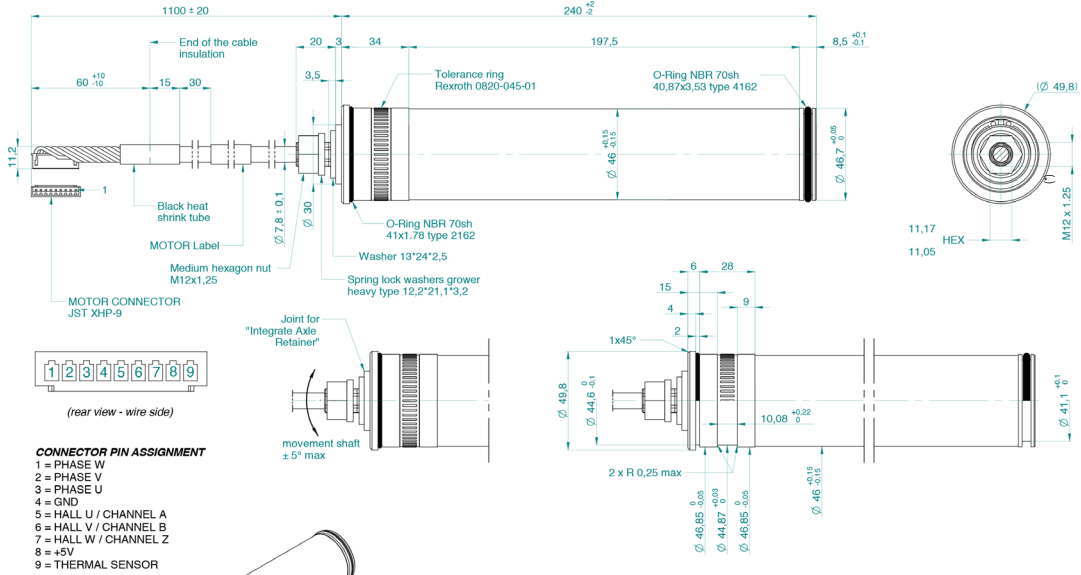
| | | | |
|--------------------|-------------------------------|---------------------|---------------------------|
| TIME RATING | Continuous | AMBIENT TEMPERATURE | 0 to 40 °C |
| INSULATION CLASS | F | AMBIENT HUMIDITY | 5 to 85% (non-condensing) |
| ENCLOSURE | Totally enclosed. Self-cooled | POLES | 28 |
| THERMAL PROTECTION | NTC | UL RECOGNIZED | cURus E468964 |
| CE certified | | | |

Motoroller 46 75 06 Motoroller 46 75 13 Motoroller 46 140 13

| | | | | | |
|-------------------------------|-----------------|------------------------|------|--|-------|
| Stall torque | Cn0 | Nm | 0,74 | 0,74 | 1,5 |
| Peak torque | Cpk | Nm | 2,2 | 2,2 | 4,5 |
| Rated torque | Cn | Nm | 0,6 | 0,6 | 1,35 |
| Rated working speed | nM | rpm | 800 | 800 | 800 |
| Rated voltage | Un | Vdc | 24 | 48 | 48 |
| Maximum working speed @ 24Vdc | nmax | rpm | 1000 | 500 | 500 |
| Maximum working speed @ 48Vdc | nmax | rpm | 1150 | 1150 | 1000 |
| Rated output power | Pn | W | 50 | 50 | 115 |
| Stall current | In0 | Arms | 3,3 | 1,63 | 3,3 |
| Peak current | l _{pk} | Arms | 11 | 5,71 | 10,61 |
| Rated current | In | Arms | 2,7 | 1,33 | 3 |
| Torque constant | Kt | Nm/Arms | 0,22 | 0,45 | 0,45 |
| Voltage constant | Ke | V _{rsm} /Krpm | 13,6 | 27,6 | 27,6 |
| Phase/phase resistance @25°C | Rff | Ohm | 0,77 | 2,64 | 1,23 |
| Phase/phase inductance | Lff | mH | 1,35 | 5,4 | 2,81 |
| Electrical time constant | Te | ms | 1,75 | 2 | 2,3 |
| Rotor inertia | Jm | Kg cm ² | 5 | 5 | 6,1 |
| Motor weight | m | Kg | 1,96 | 1,96 | 2,73 |
| Axial shaft load @800 rpm | Fa | N | | 110 | |
| Radial shaft load @800 rpm | Fr | N | | 220 (applied on the rotor's centering) | |

MOTOROLLER 46 FRAMELESS DIMENSIONS

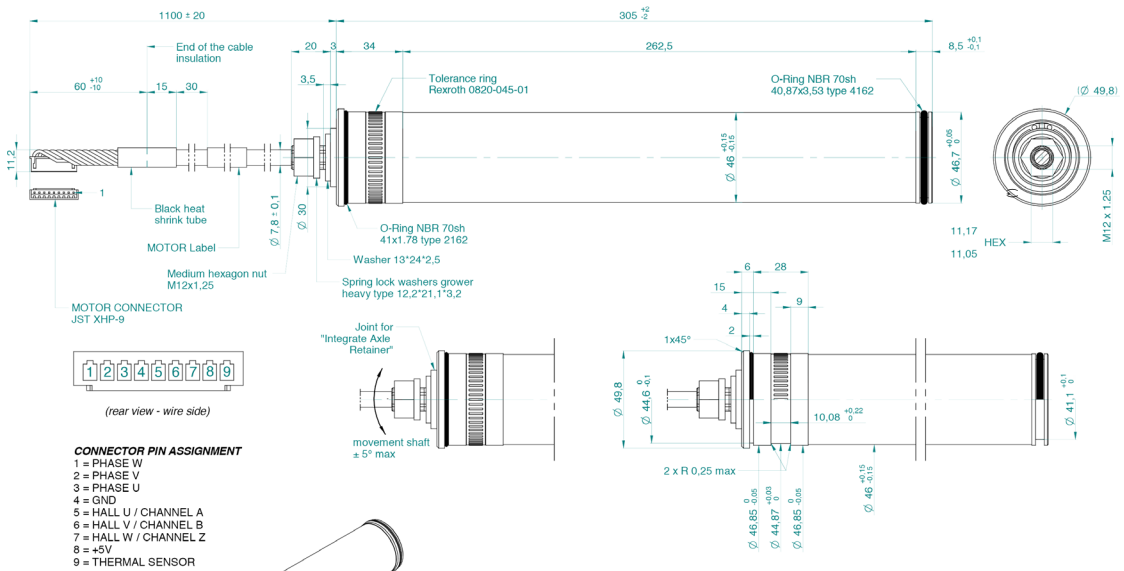
Motoroller 46 75



Dimensions in mm

NOTE: maximum fixing torque for M12x1,25 is 30Nm

Motoroller 46 140



Dimensions in mm

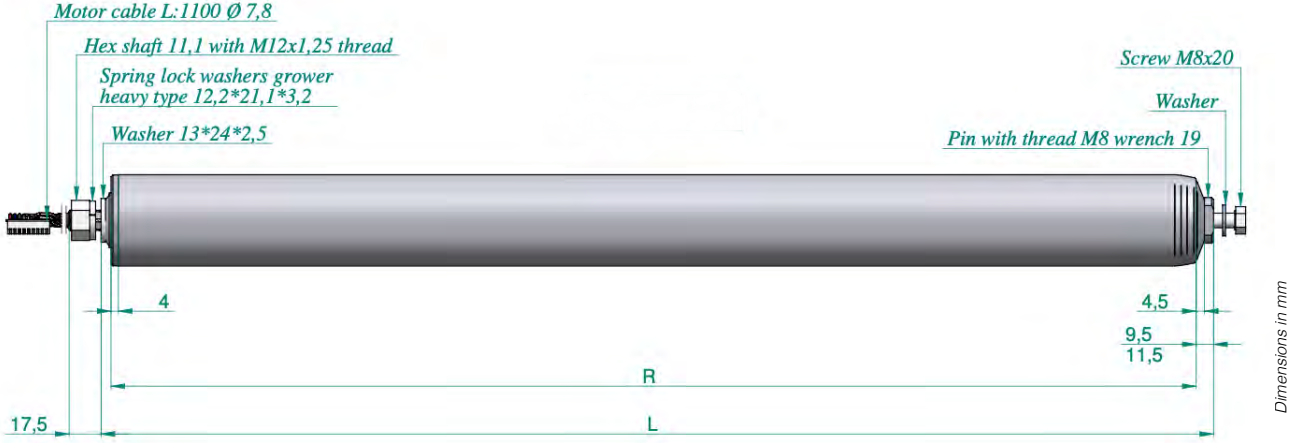
NOTE: maximum fixing torque for M12x1,25 is 30Nm

SEE IT BEFORE IT HAPPENS

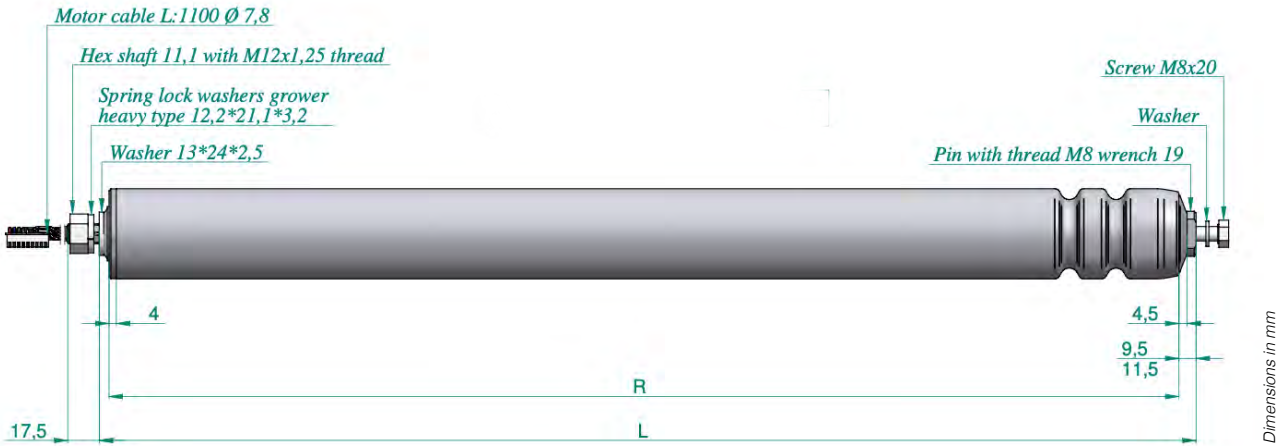


MOTOROLLER 46 POWER PACK TUBE TYPE

Motoroller 46 standard tube 01

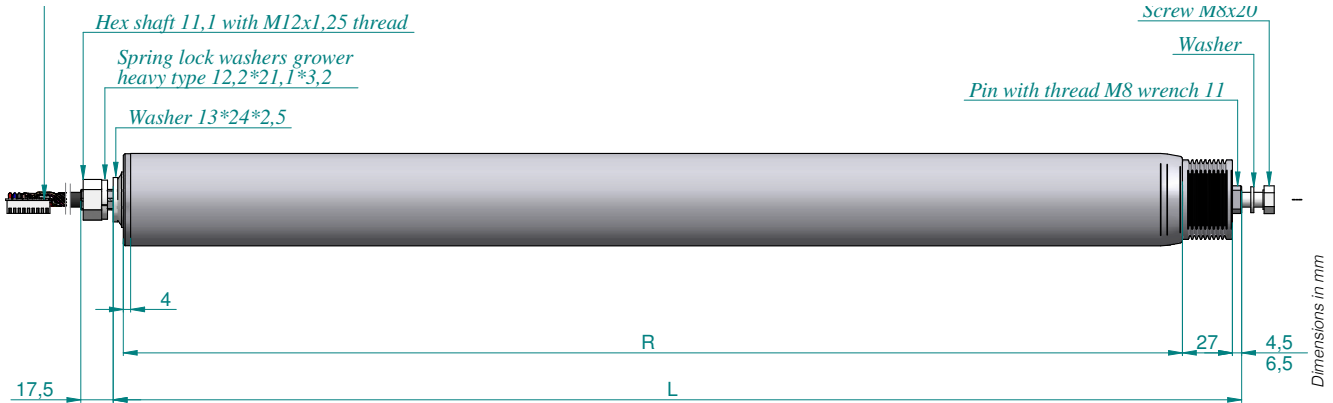


Motoroller 46 double grooved tube 02



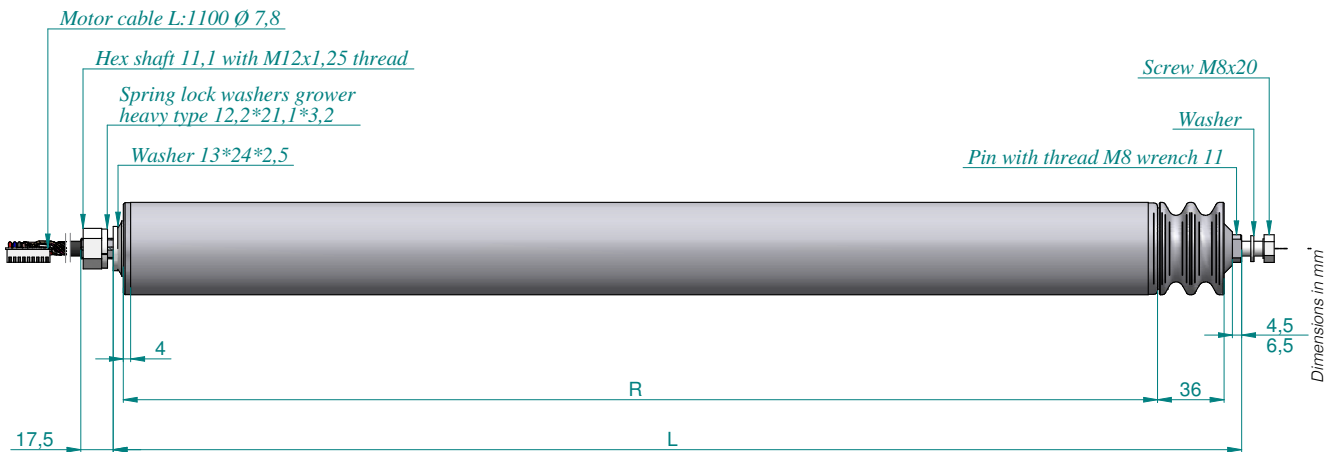
MOTOROLLER 46 POWER PACK TUBE TYPE

Motoroller 46 poly-V pulley tube 04 (**)

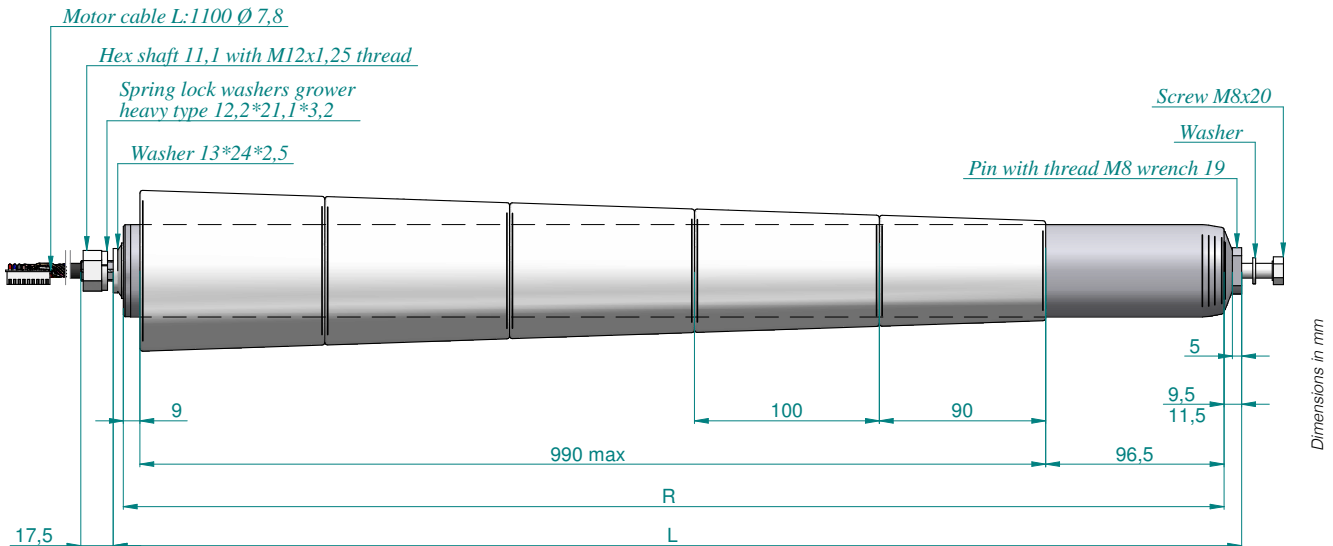


(**) This version is not available for sale in Germany

Motoroller 46 double grooved pulley tube 05



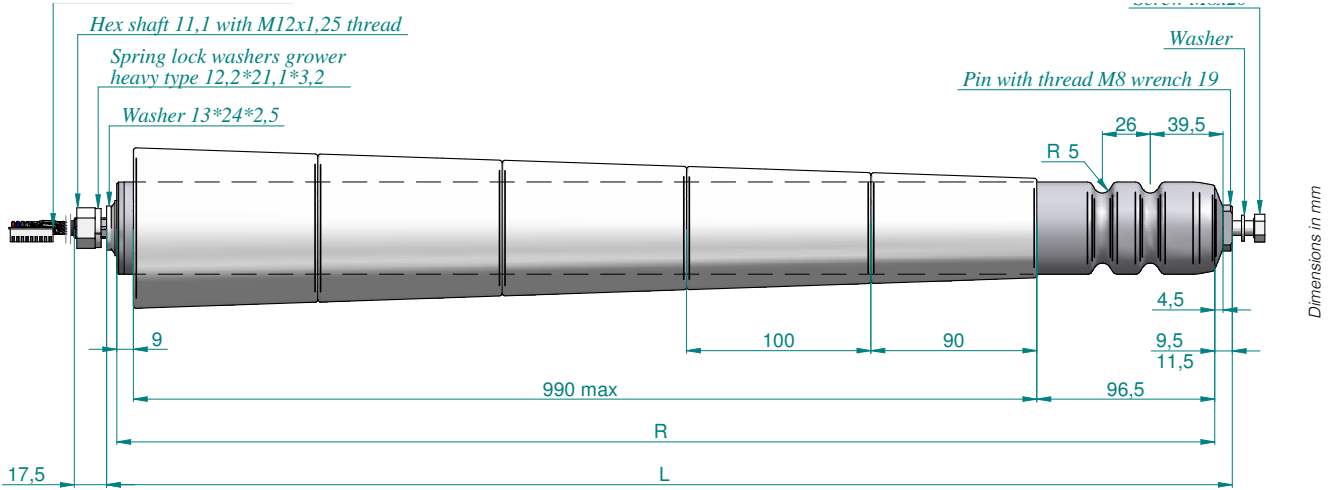
Motoroller 46 tapered sleeves tube 06



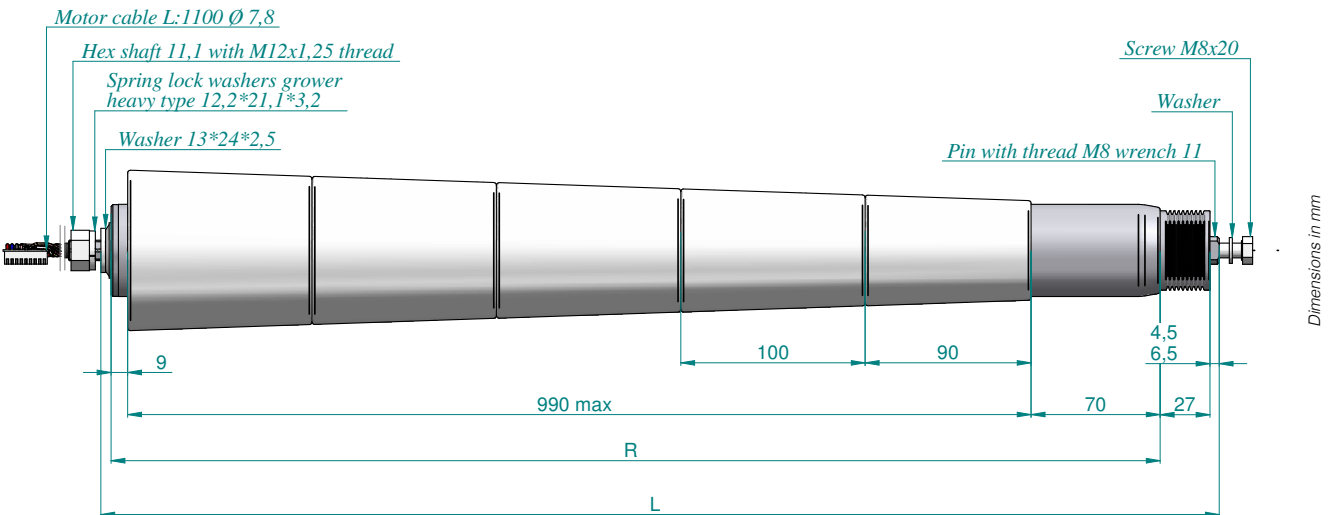
SEE IT BEFORE IT HAPPENS

MOTOROLLER 46 POWER PACK TUBE VERSIONS

Motoroller 46 double grooved and tapered sleeves tube 07

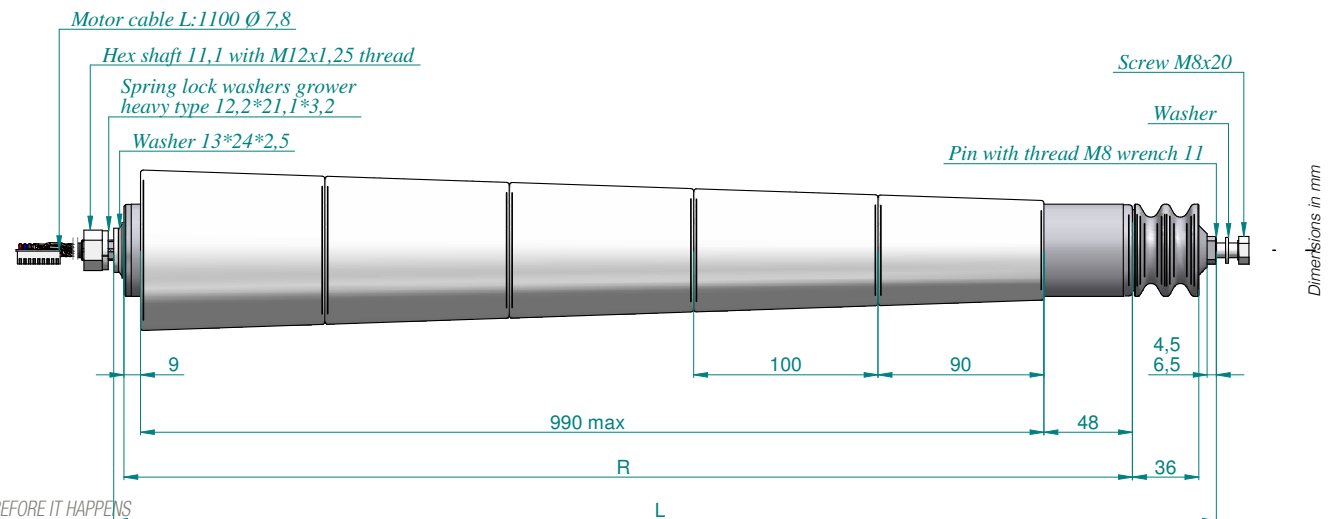


Motoroller 46 poly-V pulley and tapered sleeves tube 08 (**)



(**) This version is not available for sale in Germany

Motoroller 46 double grooved pulley and tapered sleeves tube 09



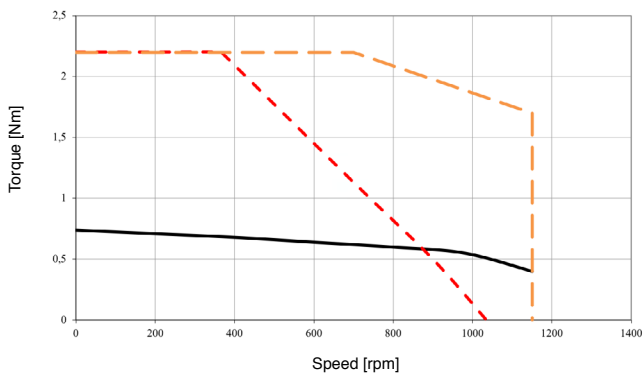
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MOTOROLLER 46 TORQUE /SPEED CHARTS

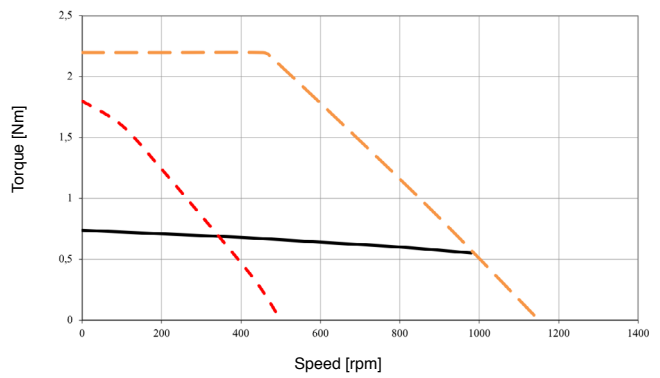
- Continuous duty @ rated voltage
- - - 24 Vdc
- . - . 48 Vdc
- • • 60 Vdc
- • • 65 Vdc
- • • 230 Vac



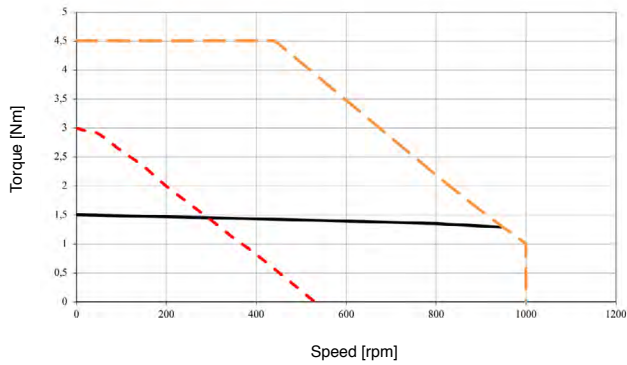
MOTOROLLER 46 75 06



MOTOROLLER 46 75 13



MOTOROLLER 46 140 13



MOTOROLLER 60 RATINGS AND SPECIFICATIONS

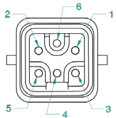
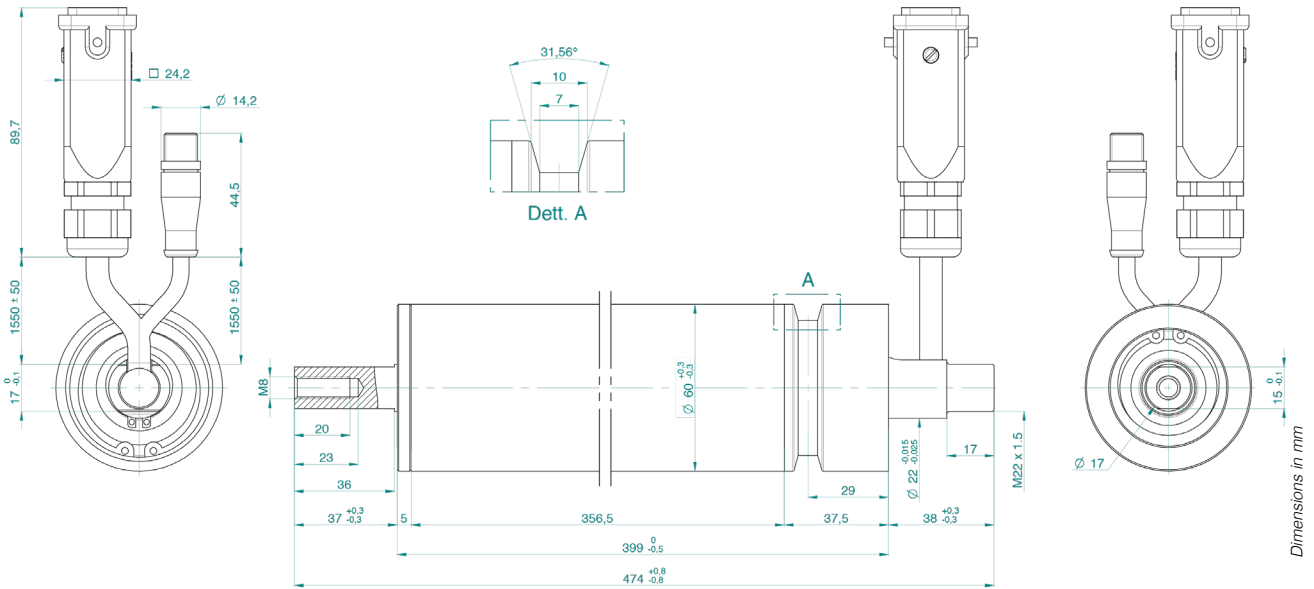
| | | | |
|--------------------|-------------------------------|---------------------|---------------------------|
| TIME RATING | Continuous | AMBIENT TEMPERATURE | 0 to 40 °C |
| INSULATION CLASS | F | AMBIENT HUMIDITY | 5 to 85% (non-condensing) |
| ENCLOSURE | Totally enclosed. Self-cooled | POLES | 28 |
| THERMAL PROTECTION | NTC | UL RECOGNIZED | cURus E468964 |
| CE certified | | | |

Motoroller 60 150 21

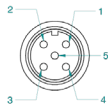
| | | | |
|-------------------------------|-----------------|--------------------|--|
| Stall torque | Cn0 | Nm | 3,2 |
| Peak torque | Cpk | Nm | 10 |
| Rated torque | Cn | Nm | 2,8 |
| Rated working speed | nM | rpm | 800 |
| Rated voltage | Un | Vdc | 60 |
| Maximum working speed @ 60Vdc | nmax | rpm | 1200 |
| Rated output power | Pn | W | 235 |
| Stall current | In0 | Arms | 7 |
| Peak current | l _{pk} | Arms | 23 |
| Rated current | In | Arms | 5,2 |
| Torque constant | Kt | Nm/Arms | 0,53 |
| Voltage constant | Ke | Vrsm/Krpm | 31,8 |
| Phase/phase resistance @25°C | Rff | Ohm | 0,5 |
| Phase/phase inductance | Lff | mH | 1,8 |
| Electrical time constant | Te | ms | 3,6 |
| Rotor inertia | Jm | Kg cm ² | 16,8 |
| Motor weight | m | Kg | 5,3 |
| Axial shaft load @800 rpm | Fa | N | 140 |
| Radial shaft load @800 rpm | Fr | N | 600 (applied on the rotor's centering) |

MOTOROLLER 60 POWER PACK DIMENSIONS

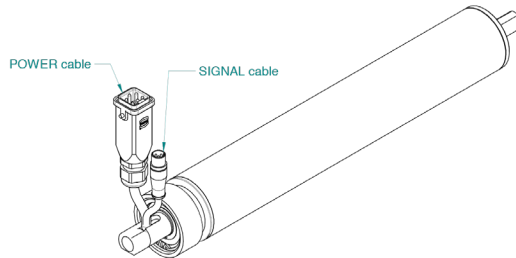
Motoroller 60 150



POWER CONNECTOR
HAN Q/O-M-C 6p MS
 1 = PHASE U
 2 = PHASE V
 3 = PHASE W
 4 = -
 5 = -
 6 = PE

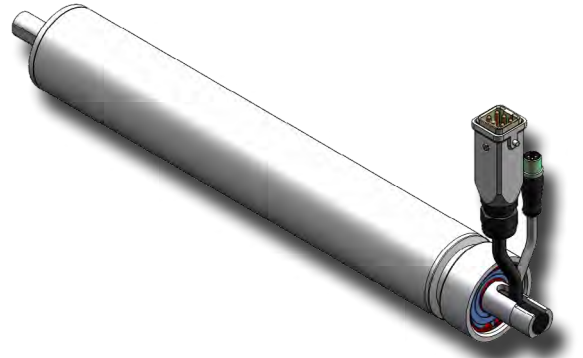


SIGNAL CONNECTOR
M12 5p MS
 1 = HALL U
 2 = HALL V
 3 = HALL W
 4 = 5/12 VDC
 5 = GND

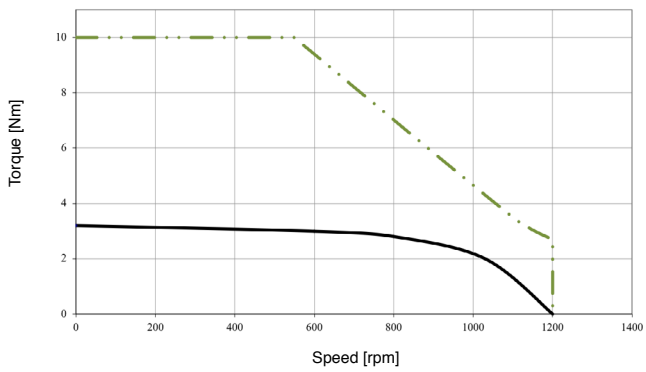


MOTOROLLER 60 TORQUE /SPEED CHARTS

- Continuous duty @ rated voltage
- 24 Vdc
- 48 Vdc
- 60 Vdc
- 65 Vdc
- 230 Vac



MOTOROLLER 60 150 21



MOTOROLLER 76 RATINGS AND SPECIFICATIONS

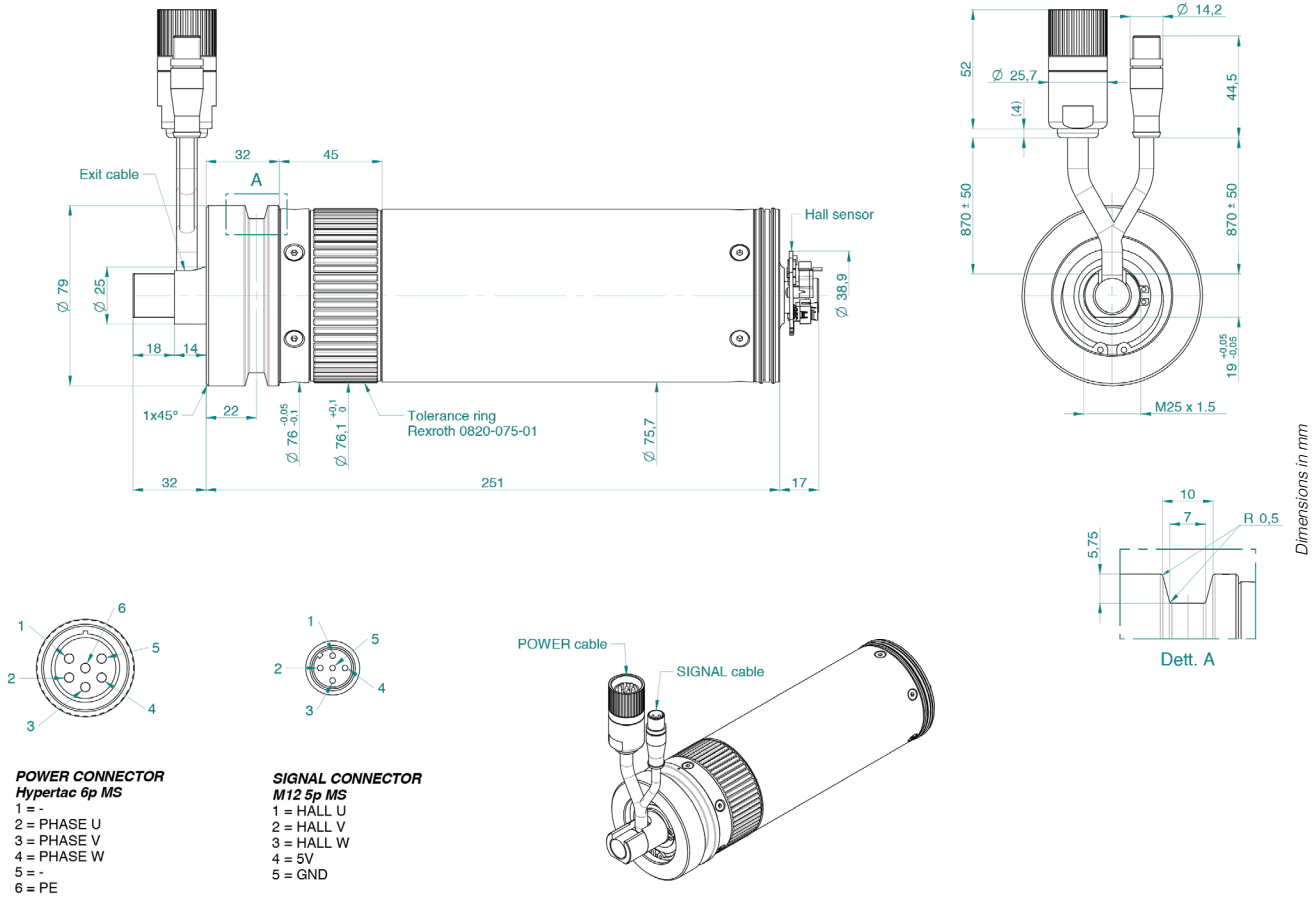
| | | | |
|--------------------|-------------------------------|---------------------|---------------------------|
| TIME RATING | Continuous | AMBIENT TEMPERATURE | 0 to 40 °C |
| INSULATION CLASS | F | AMBIENT HUMIDITY | 5 to 85% (non-condensing) |
| ENCLOSURE | Totally enclosed. Self-cooled | POLES | 28 |
| THERMAL PROTECTION | NTC | UL RECOGNIZED | cURus E468964 |
| CE certified | | | |

Motoroller 76 100 14

| | | | |
|-------------------------------|------|--------------------|--|
| Stall torque | Cn0 | Nm | 3,6 |
| Peak torque | Cpk | Nm | 22 |
| Rated torque | Cn | Nm | 3,1 |
| Rated working speed | nM | rpm | 800 |
| Rated voltage | Un | Vdc | 60 |
| Maximum working speed @ 48Vdc | nmax | rpm | 800 |
| Maximum working speed @ 65Vdc | nmax | rpm | 1000 |
| Rated output power | Pn | W | 260 |
| Stall current | In0 | Arms | 6,1 |
| Peak current | lpk | Arms | 41 |
| Rated current | In | Arms | 5,2 |
| Torque constant | Kt | Nm/Arms | 0,59 |
| Voltage constant | Ke | Vrsm/Krpm | 36 |
| Phase/phase resistance @25°C | Rff | Ohm | 0,51 |
| Phase/phase inductance | Lff | mH | 0,7 |
| Electrical time constant | Te | ms | 1,37 |
| Rotor inertia | Jm | Kg cm ² | 23,2 |
| Motor weight | m | Kg | 5,1 |
| Axial shaft load @800 rpm | Fa | N | 220 |
| Radial shaft load @800 rpm | Fr | N | 500 (applied on the rotor's centering) |

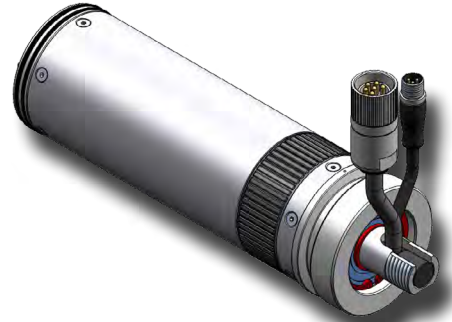
MOTOROLLER 76 FRAMELESS DIMENSIONS

Motoroller 76 100

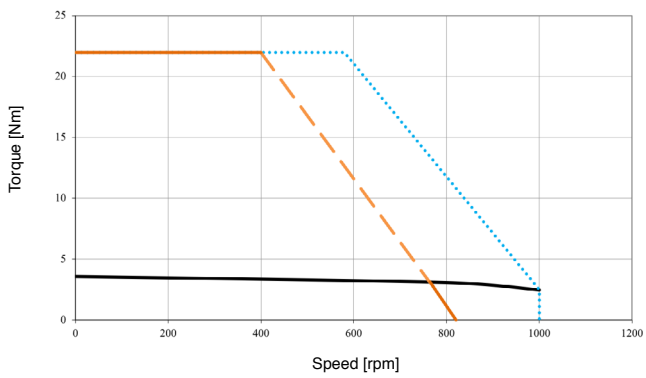


MOTOROLLER 76 TORQUE /SPEED CHARTS

- Continuous duty @ rated voltage
- 24 Vdc
- 48 Vdc
- 60 Vdc
- 65 Vdc
- 230 Vac



MOTOROLLER 76 100 14



PALLET CONVEYOR MOTOROLLER 70 RATINGS AND SPECIFICATIONS

TIME RATING
INSULATION CLASS
ENCLOSURE
THERMAL PROTECTION
CE certified

S3 1'1/2' (Ton = 1' / Toff = 2')
F
Totally enclosed. Self-cooled
PT1000

AMBIENT TEMPERATURE 0 to 40 °C
AMBIENT HUMIDITY 5 to 85% (non-condensing)
POLES 8
INSULATION SYSTEM UL /CSA cURus, DV155J File nr.:E216686

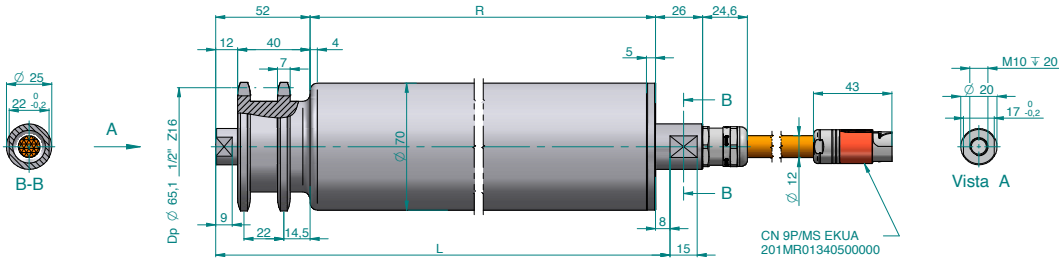
Pallet Conveyor Motoroller 70 045 01 Pallet Conveyor Motoroller 70 045 04

| | | | | |
|------------------------------|-----------------|--------------------|-------------------------------------|-------------------------------------|
| Stall torque* | Cn0 | Nm | 25 | 25 |
| Peak torque** | Cpk | Nm | 40 | 40 |
| Rated torque * | Cn | Nm | 25 | 25 |
| Rated working speed @ 24Vdc | | m/s | 0,26 (70 rpm) | 0,12 (32,5 rpm) |
| Rated working speed @ 48Vdc | | m/s | 0,37 (101 rpm) | 0,24 (65,7 rpm) |
| Rated output power @ 24Vdc | Pn | W | 185 | 85 |
| Rated output power @ 48Vdc | Pn | W | 265 | 170 |
| Rated voltage | Un | | 24-48 Vdc | 24-48 Vdc |
| Stall current* | In0 | Arms | 9,5 | 4,8 |
| Peak current | l _{pk} | Arms | 14,2 | 7,2 |
| Rated current* | In | Arms | 10,5 | 5,2 |
| Torque constant | Kt | Nm/Arms | 0,094 | 0,187 |
| Voltage constant | Ke | Vrsm/Krpm | 5,7 | 11,3 |
| Phase/phase resistance @25°C | Rff | Ohm | 0,16 | 0,67 |
| Phase/phase inductance | Lff | mH | 0,48 | 2,1 |
| Electrical time constant | Te | ms | 3,0 | 3,1 |
| Rotor inertia | Jm | Kg cm ² | 0,300 | 0,300 |
| Axial load @76 rpm | Fa | N | 350 (applied on the rotor's middle) | 350 (applied on the rotor's middle) |
| Radial shaft load @76 rpm | Fr | N | 1500 (distributed on the rotor) | 1500 (distributed on the rotor) |

* Rating performances @ 20°C ** Peak torque max duration : 2s

PALLET CONVEYOR MOTOROLLER 70 DIMENSIONS - type 01

Pallet Conveyor Motoroller 70 045 power pack reference drawing 01



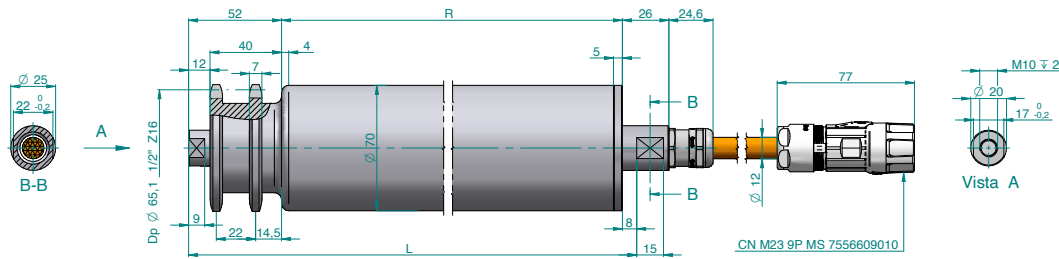
Dimensions in mm

(R) different length available on request

CONNECTIONS

| POLE NR. | COLOR | FUNCTION |
|----------|--------------|----------|
| 1 | Brown/Green | +5V |
| 2 | White/Green | GND |
| 2 | Gray | Hall U |
| 4 | Pink | Hall W |
| 5 | Yellow | Hall V |
| A | Blue | Phase U |
| B | Brown | Phase W |
| C | Black | Phase V |
| PE | Green/Yellow | Earth/PE |

Pallet Conveyor Motoroller 70 045 power pack reference drawing 02



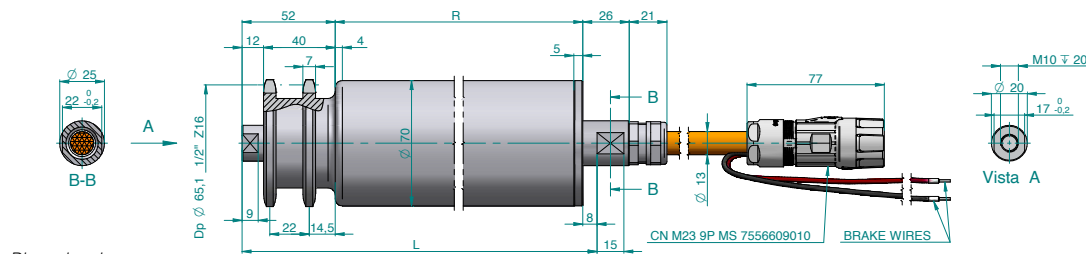
Dimensions in mm

(R) different length available on request

CONNECTIONS

| POLE NR. | COLOR | FUNCTION |
|----------|--------------|----------|
| 1 | Brown/Green | +5V |
| 2 | White/Green | GND |
| 2 | Gray | Hall U |
| 4 | Pink | Hall W |
| 5 | Yellow | Hall V |
| A | Blue | Phase U |
| B | Brown | Phase W |
| C | Black | Phase V |
| PE | Green/Yellow | Earth/PE |

Pallet Conveyor Motoroller 70 045 power pack reference drawing 03



Dimensions in mm

(R) different length available on request

CONNECTIONS

| POLE NR. | COLOR | FUNCTION |
|----------|--------------|----------|
| 1 | Brown/Green | +5V |
| 2 | White/Green | GND |
| 2 | Gray | Hall U |
| 4 | Pink | Hall W |
| 5 | Yellow | Hall V |
| A | Blue | Phase U |
| B | Brown | Phase W |
| C | Black | Phase V |
| PE | Green/Yellow | Earth/PE |

BRAKE WIRES

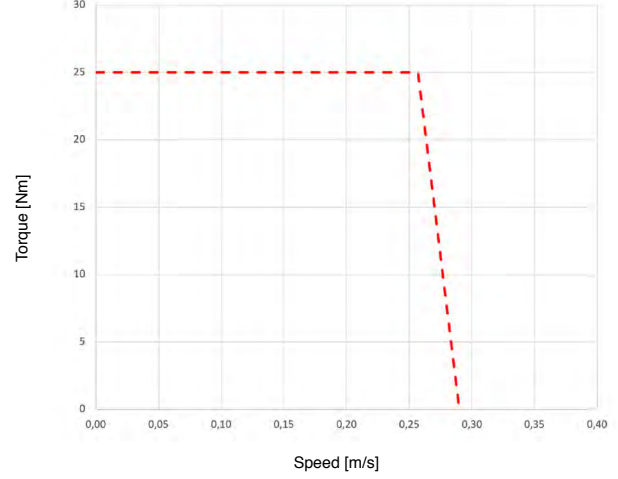
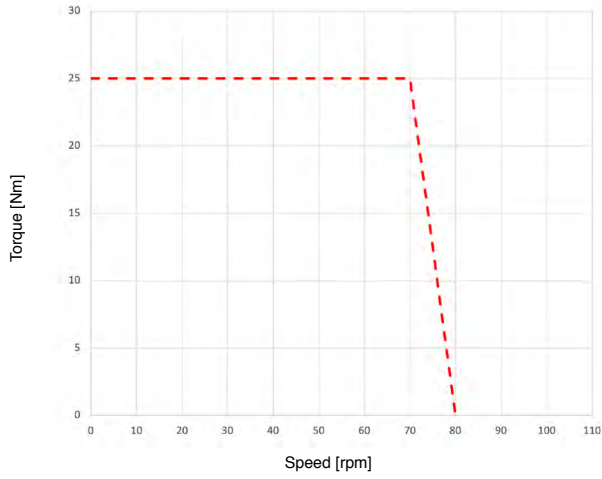
| COLOR | FUNCTION |
|-------|----------|
| Red | Brake + |
| Black | Brake - |

PALLET CONVEYOR 70 045 TORQUE/SPEED CHARTS

- Continuous duty @ rated voltage
- 24 Vdc
- 48 Vdc
- 60 Vdc
- 65 Vdc
- 230 Vac

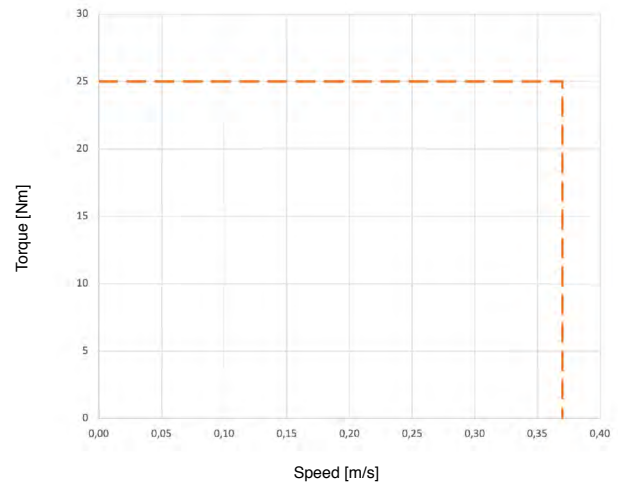
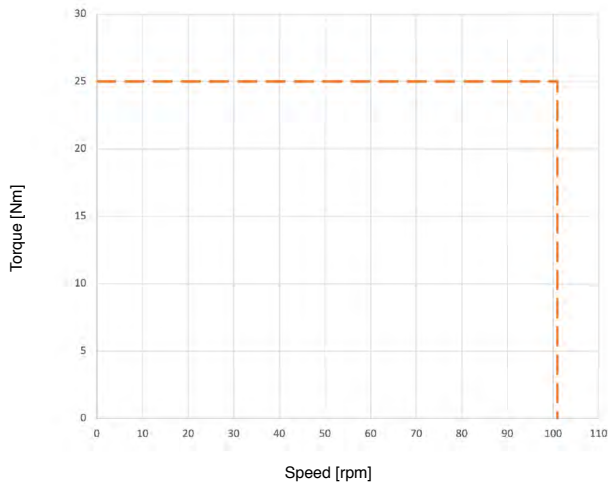
MOTOROLLER 70 045 01

24Vdc



MOTOROLLER 70 045 01

48Vdc

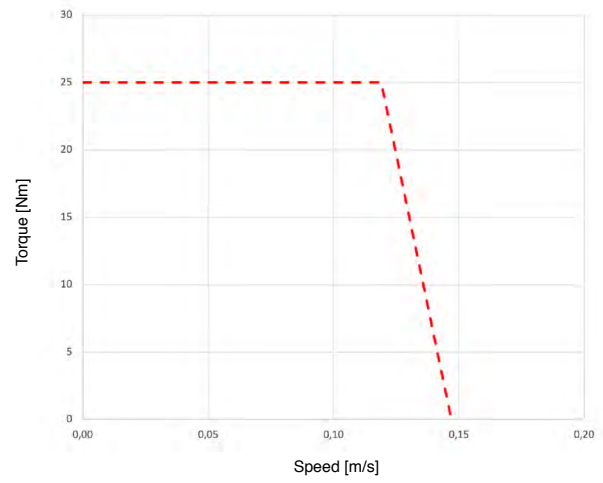
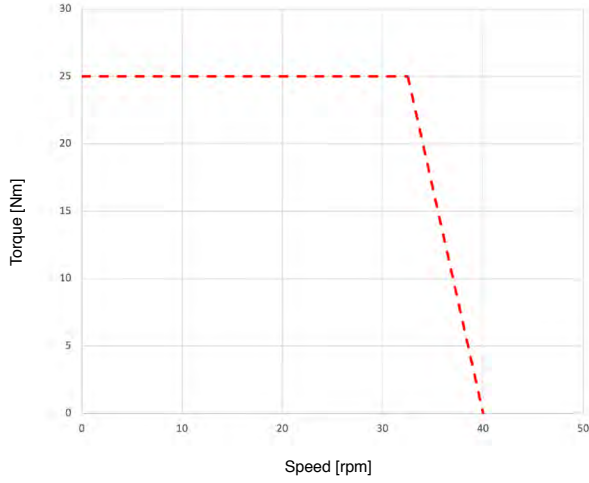


PALLET CONVEYOR 70 045 TORQUE/SPEED CHARTS

- Continuous duty @ rated voltage
- 24 Vdc
- 48 Vdc
- 60 Vdc
- 65 Vdc
- 230 Vac

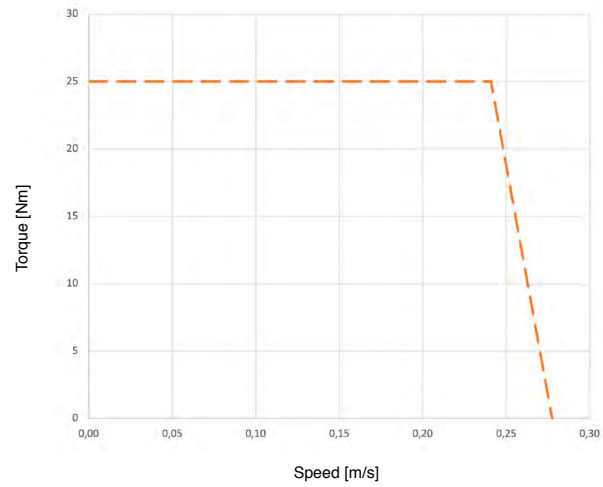
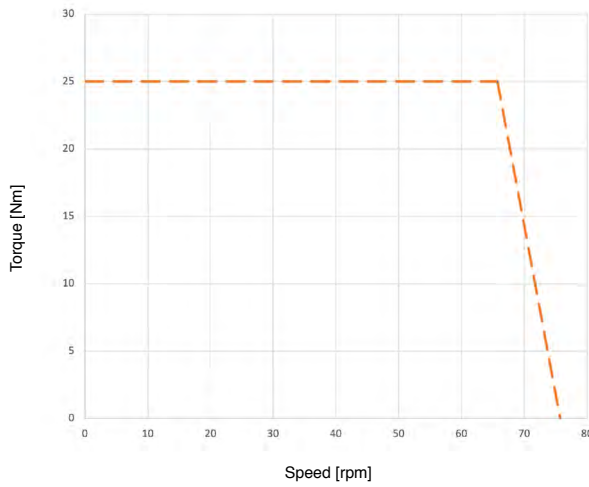
MOTOROLLER 70 045 04

24Vdc



MOTOROLLER 70 045 04

48Vdc



PALLET CONVEYOR MOTOROLLER 89 RATINGS AND SPECIFICATIONS

TIME RATING
INSULATION CLASS
ENCLOSURE
THERMAL PROTECTION
CE certified

S3 1'1/2' (Ton = 1' / Toff = 2')
F
Totally enclosed. Self-cooled
PT1000

AMBIENT TEMPERATURE 0 to 40 °C
AMBIENT HUMIDITY 5 to 85% (non-condensing)
POLES 8
INSULATION SYSTEM UL /CSA cURus, DV155J File nr.:E216686CE

| | | | Pallet Conveyor Motoroller 89 045 01 | Pallet Conveyor Motoroller 89 045 04 | Pallet Conveyor Motoroller 89 045 15 |
|------------------------------|-----------------|--------------------|--|--|--|
| Stall torque* | Cn0 | Nm | 73 | 73 | 73 |
| Peak torque** | Cpk | Nm | 120 | 120 | 120 |
| Rated torque * | Cn | Nm | 43 | 55 | 51 |
| Rated working speed | | m/s | 0,37 (79,5 rpm) | 0,27 (57,9 rpm) | 0,31 (66,5 rpm) |
| Rated output power | Pn | W | 360 | 335 | 355 |
| Rated voltage | Un | | 48 Vdc | 48 Vdc | 230 Vac |
| Stall current* | In0 | Arms | 19 | 8,8 | 2 |
| Peak current | l _{pk} | Arms | 33 | 15 | 3,5 |
| Rated current* | In | Arms | 12,5 | 7,4 | 1,55 |
| Torque constant | Kt | Nm/Arms | 0,096 | 0,187 | 0,91 |
| Voltage constant | Ke | Vrsm/Krpm | 5,8 | 11,3 | 55 |
| Phase/phase resistance @25°C | Rff | Ohm | 0,17 | 0,67 | 13,3 |
| Phase/phase inductance | Lff | mH | 0,38 | 2,1 | 38,5 |
| Electrical time constant | Te | ms | 2,2 | 3,1 | 2,9 |
| Rotor inertia | Jm | Kg cm ² | 0,526 | 0,526 | 0,526 |
| Axial load @80 rpm | Fa | N | 240 <small>(applied on the rotor's middle)</small> | 240 <small>(applied on the rotor's middle)</small> | 240 <small>(applied on the rotor's middle)</small> |
| Radial shaft load @80 rpm | Fr | N | 3800 <small>(applied on the rotor's middle)</small> | 3800 <small>(applied on the rotor's middle)</small> | 3800 <small>(applied on the rotor's middle)</small> |

* Rating performances@ 20°C ** Peak torque max duration : 2s

PALLET CONVEYOR MOTOROLLER 89 DIMENSIONS - type 01

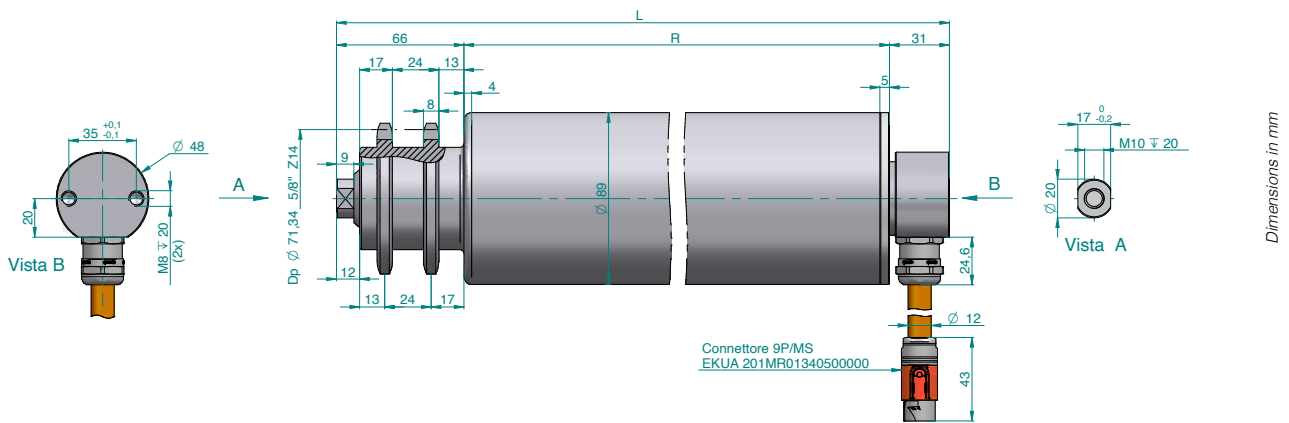


MTR 89 045 - TYPE 01

R 922 mm
 L* 1000 mm
 Weight 22,5 Kg

(*) different length available on request

Pallet Conveyor Motoroller 89 045 power pack reference drawing 01

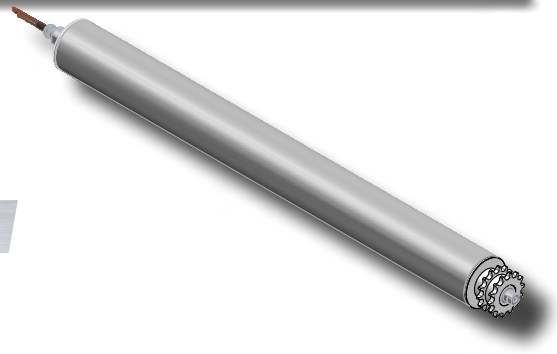


(R) different length available on request

CONNECTIONS

| N° PIN | WIRE COLOR | FUNCTION |
|--------|------------|----------|
| 1 | Bn/Gn | +5V |
| 2 | Wh/Gn | GND |
| 3 | Gray | HALL U |
| 4 | Pink | HALL W |
| 5 | Yellow | HALL V |
| A | Blue | Phase U |
| B | Brown | Phase W |
| C | Bk | Phase V |
| PE | Gn/Ye | Earth/PE |

PALLET CONVEYOR MOTOROLLER 89 DIMENSIONS - type 02

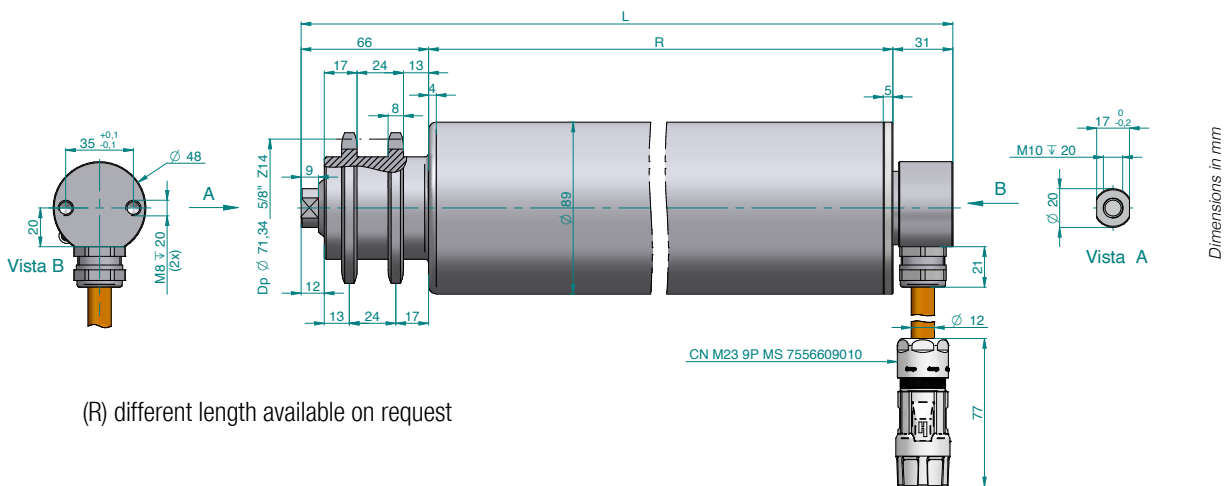


MTR 089 45 - TYPE 02

| | |
|--------|---------|
| R | 898 mm |
| L* | 960 mm |
| Weight | 22,4 Kg |

*different length available on request

Pallet Conveyor Motoroller 89 045 power pack reference drawing 02



CONNECTIONS

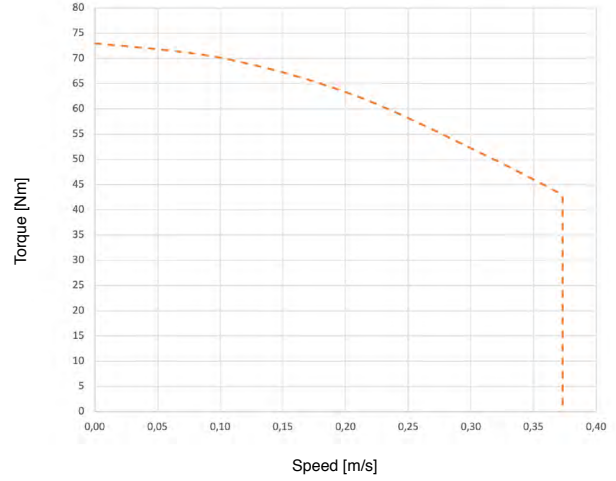
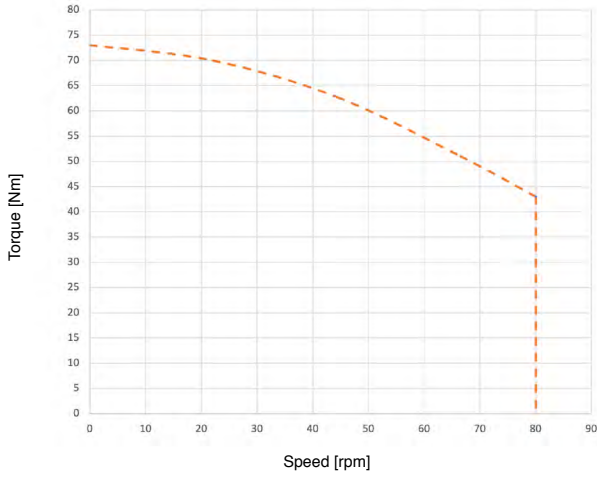
| N° PIN | WIRE COLOR | FUNCTION |
|--------|------------|----------|
| E | Bn/Gn | +5V |
| F | Wh/Gn | GND |
| G | Gray | HALL U |
| H | Pink | HALL W |
| L | Yellow | HALL V |
| A | Blue | Phase U |
| B | Brown | Phase W |
| C | Bk | Phase V |
| PE | Gn/Ye | Earth/PE |

PALLET CONVEYOR MOTOROLLER 89 TORQUE /SPEED CHARTS

- Continuous duty @ rated voltage
- 24 Vdc
- 48 Vdc
- 60 Vdc
- 65 Vdc
- 230 Vac

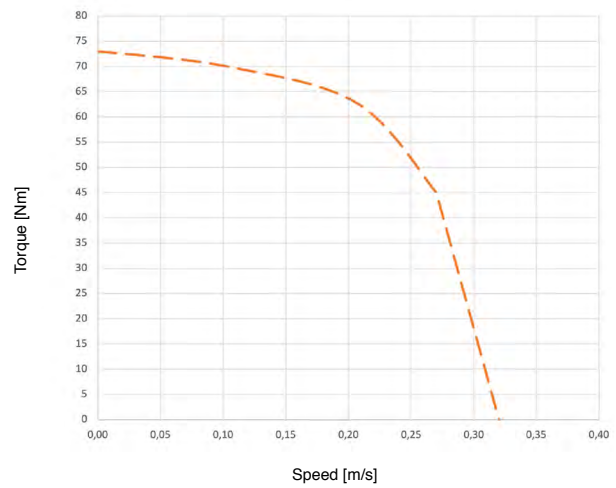
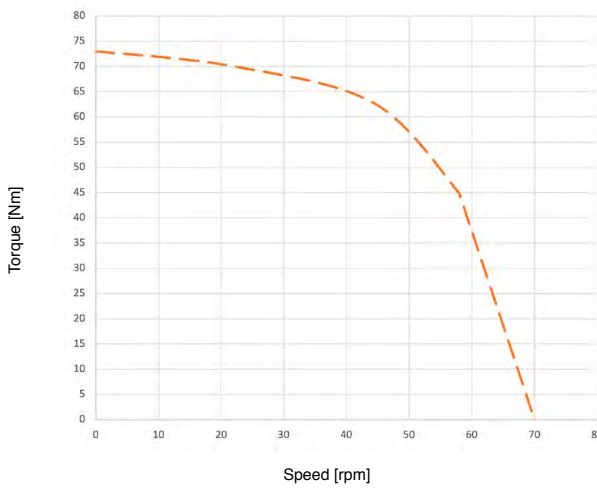
MOTOROLLER 89 045 01

48Vdc



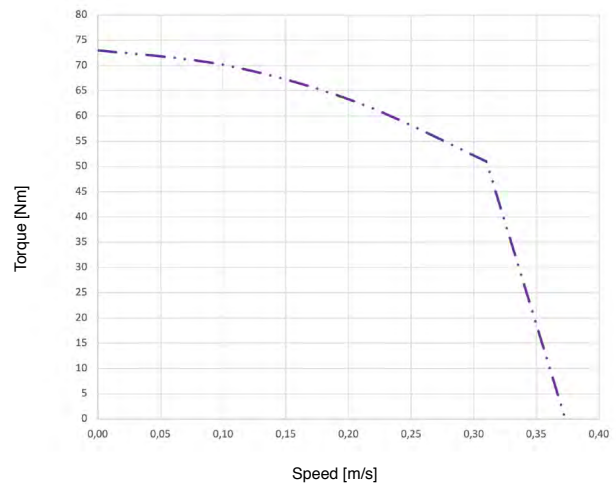
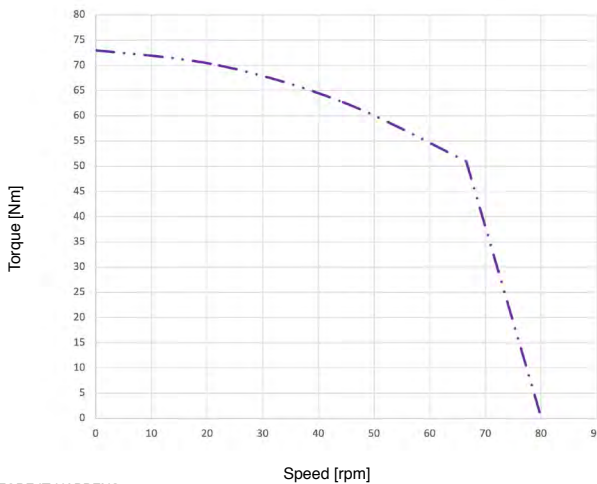
MOTOROLLER 89 045 04

48Vdc



MOTOROLLER 89 045 15

230 Vac



SEE IT BEFORE IT HAPPENS

FEEDBACK FEATURES

H1 HALL SENSOR

| | | |
|-------------------------|-----|-----------------------|
| Motor size | | Motoroller 46 -60- 76 |
| Nominal Voltage | V | 5-9 \pm 5% |
| Nominal current | mA | 100 |
| Electronic type | | OPEN COLLECTOR |
| N° of pulses revolution | ppr | 84 |

E1 INCREMENTAL ENCODER

| | | |
|-------------------------|-----|-----------------------|
| Motor size | | Motoroller 46 -60- 76 |
| Nominal Voltage | Vdc | 5-9 \pm 5% |
| Nominal current | mA | 100 |
| Electronic type | | OPEN COLLECTOR |
| Zero impulse | | ONE AT A LAP |
| N° of pulses revolution | ppr | 896 |
| Resolution | cpr | 3584 |

**»» *PERFECTLY
MATCHED DRIVES:
MAXIMIZING PERFORMANCE
AND EFFICIENCY***

DMR SERVO DRIVES

The DMR series is a series of customized drives dedicated to logistic automation market. The series features two models: DMR 50-5/50, DMR76-10/65 and DMR PC 6/50, designed and manufactured for driving gearless motorollers, exploiting its technological advantages based on direct drive without any gear for motion transmission.

DMR 50-5/50 FEATURES

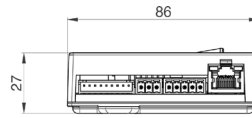
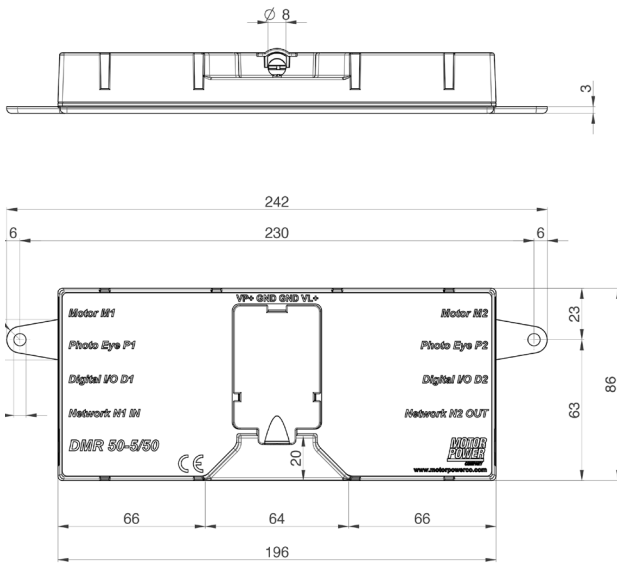
- > **DUAL AXES OPERATION CAPABILITY**
- > **PERFECT MATCH WITH GEARLESS MOTOROLLER MTR46**
- > **I/O PROGRAMMABILITY**
- > **FUSE PROTECTION**
- > **CROSSBELT FUNCTIONALITY**
- > **CONVEYOR FUNCTIONALITY**
- > **SPEED AND ACCELERATION PROGRAMMABILITY**
- > **HALL SENSOR AND ENCODER FEEDBACK**
- > **DMR BROWSER SOFTWARE INTERFACE**
- > **RS 485 PROGRAMMING INTERFACE**
- > **CAN OPEN FIELDBUS**
- > **PHOTO EYE SUPPORT**
- > **2 INPUT, 2 OUTPUT RELAY EACH AXIS**



DMR 50-5/50 PRODUCT DATA

| FEATURE | UNITS | DMR 50-5/50 |
|---------------------------|----------|-----------------------------|
| Rated output power | W | 180 each axis |
| Efficiency at rated power | % | >95 |
| Operating supply voltage | Vdc | 12-60 |
| Typical supply voltage | Vdc | 48 |
| Maximum operating voltage | Vdc | 80 |
| Auxiliary supply voltage | | 24 V (8-30) |
| Rated output current | Arms | 5 |
| Peak output current | Arms | 15 |
| Peak time | s | 3 |
| PWM switching frequency | kHz | 16 kHz |
| Maximum output frequency | Hz | <600 |
| Commutation | | Sinusoidal and space vector |
| Dimensions | WxDxH mm | 196x70x27 |
| Working temperature | °C | -20 ÷ +55 |
| Storage temperature | °C | -40 ÷ +75 |
| Humidity | % | 85% not condensing |
| Altitude without derating | m | 1000 |
| IP protection | IP | 20 |

DMR 50-5/50 PRODUCT DIMENSIONS



Dimensions in mm

DMR 50-5/50 PRODUCT DATA

MOTOR CONNECTION

| PIN | NAME |
|-----|-----------------|
| 1 | Phase U |
| 2 | Phase V |
| 3 | Phase W |
| 4 | Thermal sensor |
| 5 | Power supply 5V |
| 6 | 0V |
| 7 | Hall U/Inc A |
| 8 | Hall V/Inc B |
| 9 | Hall W/Inc Z |

PHOTO EYE INPUT

| PIN | NAME |
|-----|-----------------|
| 1 | 24V |
| 2 | GND |
| 3 | Photo eye input |

POWER CONNECTION

| PIN | NAME |
|-----|------------|
| 1 | 24V logic |
| 2 | 0 V |
| 3 | 48 V power |

I/O DEFINITION

| PIN | DIRECTION | FUNCTION |
|-----|-----------|--------------|
| 1 | Input | Enable |
| 2 | Input | Dir |
| 3 | Input | Analog Input |
| 4 | Output | Fault |
| 5 | Output | Configurable |

DMR SERVO DRIVES

DMR 76-10/65 HP is a digital drive for motorollers in cross belt applications. Main features of this drive are current digital control achieved with the technique of vector space and updated with a 10 kHz frequency. Speed digital loop with proportional-integral compensator updated with 10 kHz frequency. Position digital loop with proportional compensator and handling of dead zone updated with 10 kHz frequency. Digital Profibus interface for connecting to supervisor PLC. Motor feedback interface via Hall sensors.

DMR 76-10/65 FEATURES

- > **THE PERFECT MATCHED DRIVE FOR GEARLESS MOTOROLLER**
- > **DMR BROWSER SOFTWARE INTERFACE**
- > **MTR76**
- > **FUSE PROTECTION**
- > **USB PROGRAMMING INTERFACE**
- > **CROSSBELT FUNCTIONALITY**
- > **PROFIBUS FIELBUS DP V1**
- > **SPEED AND ACCELERATION PROGRAMMABILITY**
- > **I/O PROGRAMMABILITY**
- > **HALL SENSOR AND ENCODER FEEDBACK**
- > **I/O PROXY DUAL LOOP**
- > **2 INPUT, 2 OUTPUT RELAY**



DMR 76-10/65 PRODUCT DATA

| FEATURE | UNITS | DMR 76-10/65 |
|---------------------------|----------|--|
| Rated output power | W | 650 |
| Efficiency at rated power | % | >95 |
| Operating supply voltage | Vdc | 24-80 |
| Typical supply voltage | Vdc | 48-65 |
| Maximum operating voltage | Vdc | 85 |
| Auxiliary supply voltage | | - |
| Rated output current | Arms | 10 |
| Peak output current | Arms | 50 |
| Peak time | s | 0,75 on 20s |
| PWM switching frequency | kHz | 16 kHz |
| Maximum output frequency | Hz | <600 |
| Commutation | | Sinusoidal and space vector |
| Dimensions | WxDxH mm | 250x150x45 |
| Working temperature | °C | -20 ÷ +55 |
| Storage temperature | °C | -40 ÷ +75 |
| Humidity | % | 85% not condensing |
| Altitude without derating | m | 1000 |
| IP protection | IP | 54 on drive front 40 on the whole drive |

DMR 76-10/65

DMR 76-10/65 PRODUCT DATA

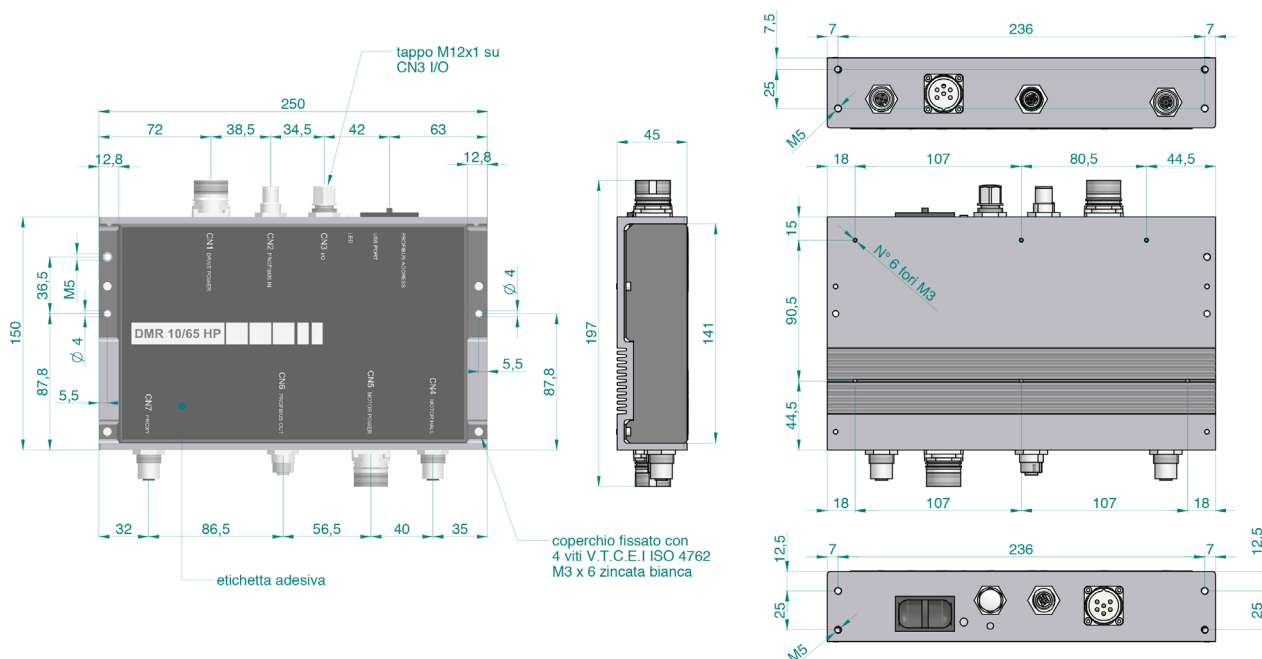
HARDWARE AND FIRMWARE CHARACTERISTICS

- ONE ELECTRONIC BOARD FOR CONTROL LOGIC AND POWER
- ONE SUPPLY FOR ELECTRONIC CONTROL AND MOTOR OUTPUT STAGE
- PROFIBUS SLAVE COMMAND INTERFACE WITH DIP SWITCH NODE ADDRESS SELECTION
- USB DEVICE INTERFACE FOR CONFIGURATION AND MAINTENANCE
- CONTROL THROUGH SINUSOIDAL ALGORITHM AND HALL SENSOR FEEDBACK
- GENERIC I/O PROGRAMMABILITY
- I/O PROXI PROGRAMMABILITY

INTERFACE

- THIS DRIVE IS EQUIPPED WITH SOFTWARE USER INTERFACE "DMR BROWSER" FOR OPERATING, MONITORING AND SUPERVISION OF THE APPLICATION. REFER TO THE APPROPRIATE MANUAL FOR INSTALLATION INSTRUCTIONS AND USE.

PRODUCT DIMENSIONS



DMR 76-10/65

CONNECTION

| DRIVE POWER | |
|--------------------|------|
| PIN | NAME |
| 1 | V+ |
| 2 | - |
| 3 | - |
| 4 | - |
| 5 | V- |
| 6 | - |

| PROFIBUS IN | |
|--------------------|--------------|
| PIN | NAME |
| 1 | - |
| 2 | DATA-/A-LINE |
| 3 | - |
| 4 | - |
| 5 | DATA+/B-LINE |

| PROFIBUS OUT | |
|---------------------|------------------|
| PIN | NAME |
| 1 | V+ |
| 2 | DATA-/A-LINE |
| 3 | V _{REF} |
| 4 | DATA+/B-LINE |
| 5 | - |

| DIGITAL I/O | |
|--------------------|----------------------------|
| PIN | NAME |
| 1 | OUT1 COM |
| 2 | INRET 123 |
| 3 | +24V _{DC} |
| 4 | OUT1 NC |
| 5 | IN1 |
| 6 | IN2 |
| 7 | IN3 |
| 8 | GND (+24 V _{DC}) |

CONNECTION

| MOTOR OUTPUT | |
|---------------------|------|
| PIN | NAME |
| 1 | - |
| 2 | U |
| 3 | V |
| 4 | W |
| 5 | - |
| 6 | PE |

| FEEDBACK | |
|-----------------|------------------|
| PIN | NAME |
| 1 | U/A |
| 2 | V/B |
| 3 | W/Z |
| 4 | 5V _{DC} |
| 5 | GND |

| PROXY DUAL LOOP | |
|------------------------|---------------------------|
| PIN | NAME |
| 1 | +24V _{DC} PROXY |
| 2 | INRET 123 PROXY |
| 3 | GND (+24V _{DC}) |
| 4 | OUT2 NO |
| 5 | OUT2 NO |
| 6 | IN7 PROXY |
| 7 | +24 V _{DC} |
| 8 | OUT2 COM |

The LITE PRO series is represented by the extremely compact 4-quadrants drives perfect matched to control motoroller 60. This series features as standard CanOpen interface and a complete programmable version with integral Motion Process Unit, that allows stand alone and network architecture operation.

FEATURES

- > **STANDARD FEEDBACK TTL ENCODER AND HALL SENSOR**
- > **DIGITAL I/O: UP TO 8 DIGITAL INPUTS AND 1 OR 2 DIGITAL OUTPUTS CUSTOMIZABLE WITH SEVERAL BUILT-IN FUNCTIONS**
- > **CONTROL: STANDARD PI CONTROL LOOP**
- > **SERVO MODES: TORQUE, VELOCITY AND POSITION WITH S-CURVE PROFILE**
- > **INTERNAL SCRIPT**
- > **EXTREME COMPACT DESIGN**
- > **USB PROGRAMMING KEY**



INTERFACE

- > **ANALOG VELOCITY AND TORQUE COMMAND $\pm 10V$**
- > **CANopen**



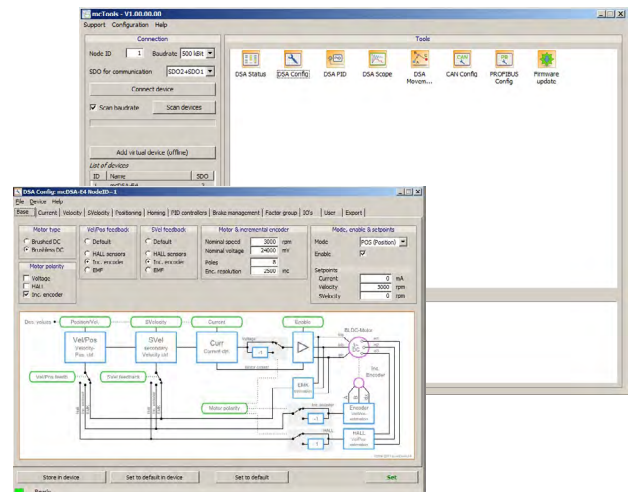
COMPACT AND PROFITABLE

PRODUCT DATA

| FEATURE | UNITS | LPRO E40 |
|-------------------------------|----------|---------------------------|
| Input voltage | VDC | 48 |
| Efficiency at rated power | % | >95 |
| Auxiliary supply voltage | VDC | 9 ... 30 |
| Continuous current | Arms | 8 |
| Peak current | Arms | 24 |
| Ambient operating temperature | °C | 0 to + 40° |
| Maximum humidity | % | 5÷85% not condensing |
| Mounting method | | Wall mounting DIN Rail |
| Dimensions | LxWxH mm | 110x22,5x77 |
| Weight | gr | 110 |
| Digital IN | | 4 |
| Digital OUT | | 1 |

LITE PRO USER INTERFACE

- > EASY AND INTUITIVE PC SOFTWARE ALLOWS A FAST PARAMETERIZATION OF THE LITE PRO
- > SIMPLE SCOPE
- > SCRIPT EDITING



DMR SERVO DRIVES

Introducing our DMR PC-6/50 Dual Axis Drives - the ideal solution for bundling with Pallet Conveyor Motorollers 70 and 89. This drive is engineered to ensure optimal performance, reliability, and precise control and accuracy in handling large, heavy items, including pallets. Typically used at the end of the line in material handling applications, this drive feature easy and intuitive commissioning for advanced motion control of two motorollers.

DMR PC-6/50 FEATURES

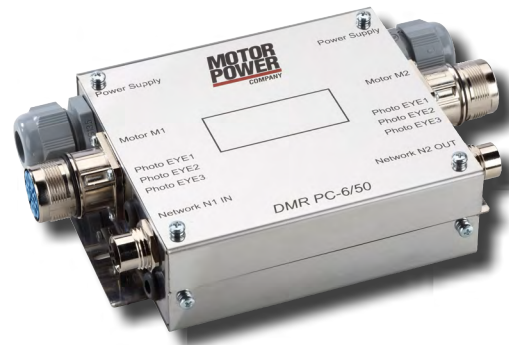
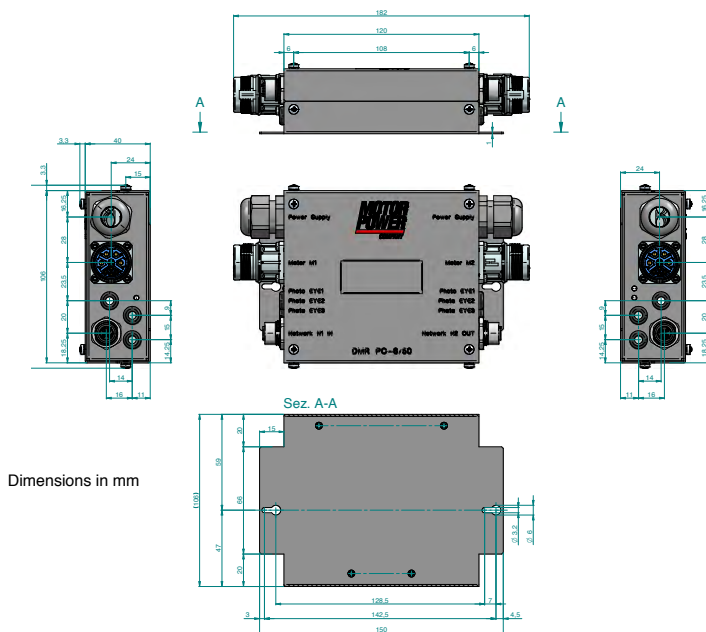
- > **DUAL AXES OPERATION CAPABILITY**
- > **PERFECT MATCH WITH PALLET CONVEYOR 70 AND 89**
- > **I/O PROGRAMMABILITY**
- > **SPEED AND ACCELERATION PROGRAMMABILITY**
- > **HALL SENSOR FEEDBACK**
- > **DMR BROWSER SOFTWARE INTERFACE**
- > **PROFINET I/O, ETHERNET IP, (for each axes) ETHERCAT**
- > **3 PHOTO EYE SUPPORT FOR EACH AXIS**
- > **2 INPUT, 2 OUTPUT**
- > **10V ANALOG INPUT**



DMR PC 6/50 PRODUCT DATA

| FEATURE | UNITS | DMR PC 6/50 |
|---------------------------|----------|-----------------------------|
| Rated output power | W | 350 each axis |
| Efficiency at rated power | % | >95 |
| Operating supply voltage | Vdc | 12-60 |
| Typical supply voltage | Vdc | 48 |
| Maximum operating voltage | Vdc | 80 |
| Auxiliary supply voltage | | 24 V (8-30) |
| Rated output current | Arms | 6 |
| Peak output current | Arms | 20 |
| Peak time | s | 3 |
| PWM switching frequency | kHz | 16 kHz |
| Maximum output frequency | Hz | <600 |
| Commutation | | Sinusoidal and space vector |
| Dimensions | WxDxH mm | 182 x 105 x 45 |
| Working temperature | °C | -20 ÷ +55 |
| Storage temperature | °C | -40 ÷ +75 |
| Humidity | % | 85% not condensing |
| Altitude without derating | m | 1000 |
| IP protection | IP | 20 |

DMR PC-6/50 PRODUCT DIMENSIONS



DMR PC-6/50 PRODUCT DATA

MOTOR CONNECTION

| PIN | FUNCTION | DESCRIPTION |
|-----|-----------------------|------------------|
| 1 | Feedback Power Supply | 5Vdc |
| 2 | Gnd | 0 Vdc |
| 3 | Hu | Hall Sensor u |
| 4 | Hv | Hall Sensor v |
| 5 | Hw | Hall Sensor w |
| A | Mu | Motor Phase |
| B | Mv | Motor Phase |
| C | Mw | Motor Phase |
| FE | Functional earth | Functional earth |

POWER SUPPLY

| PIN | FUNCTION | DESCRIPTION |
|-----|----------|--------------------|
| 1 | VP+ | Power Supply 48Vdc |
| 2 | GND | 0 Vdc |
| 4 | VL+ | Logic Supply 24Vdc |

PHOTO EYE PG AND INTERNAL CONNECTOR

| PIN | FUNCTION | DESCRIPTION |
|-----|-------------------|-------------------|
| 1 | Power Supply | 24 V power supply |
| 2 | Photo Eye Input 1 | Input Signal |
| 3 | Gnd | 0 Vdc |
| 4 | Power Supply | 24 V power supply |
| 5 | Photo Eye Input 2 | Input Signal |
| 6 | Gnd | 0 Vdc |
| 7 | Power Supply | 24 V power supply |
| 8 | Photo Eye Input 3 | Input Signal |
| 9 | Gnd | 0 Vdc |

MOTORS

MOTION CONTROL

MECHATRONICS



Motor Power Company s.r.l.

Via Leonardo Da Vinci, 4
42024 Castelnovo Sotto - Reggio Emilia - Italia
Tel. 0039 0522 682710 - Fax 0039 0522 683552
info@motorpowerco.it

Motor Power Company (Taicang) Motion Co. Ltd.

Workshop 7, Shiny Science Park No. 111
215400 Taicang, P.R.China
Tel + 86-512-33337978 - Fax +86-512-53207871
infoasia@motorpowerco.com

