



**SEE IT *BEFORE* IT HAPPENS**

**GEARLESS  
MOTORROLLER  
AND PALLET  
CONVEYOR**

# **GEARLESS MOTORROLLER 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 motorrollers 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 motorrollers 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 motoller for all speed range

-  System efficiency increase due to the absence of gears inside the motoroller.
-  No limits on start/stop cycles.
-  Drastic noise reduction.
-  No maintenance.
-  The replacement with a new motoroller does not require any configuration action.
-  High MTBF.
-  High energy saving.
-  Solid mechanical construction.
-  Increased throughput.
-  Wide-ranging speed/torque on a single item (no gearbox).
-  Wide format handling capability.

# THE GEARLESS MOTORROLLER SERIES AT A GLANCE

## GEARLESS MOTORROLLER 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 MOTORROLLER 60

### 800rpm@60 Vdc



Tube equipped gearless motoroller for cross belt driving and controlling

#### Features

- » Ready to use
- » Rated power 235 Watt
- » Rated torque 2,8 Nm
- » 60Vdc power supply
- » 48 and 65 Vdc for power supply
- » Full speed control

## GEARLESS MOTORROLLER 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 WattZ
- » Rated torque 3,1 Nm
- » Encoder feedback for higher precision
- » Cartridge diameter 76 mm suitable for alla 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

# MTR 46 AD

**Gearless motorized driven roller  
featuring integrated drive**



**Most powerful motorized driven roller on the market**



Direct drive technology offers **superior energy saving** compared to conventional technology



**48 VDC power supply**



**One model runs** any speed and torque



The elimination of gears results in an **extremely quiet motor roller**



**Standard 5 pins - M8 - connector** for ease of use



**Encoder Feedback** provides precise speed control, with 7168 pulses per revolution.

Based on 15 years of expertise in gearless motorized roller technology, the MTR 46 AD takes performance to the next level. Developed from the proven MTR 46 series, this new version enhances the already remarkable benefits of direct drive technology by integrating an advanced electronic drive.

**MTR 46 AD** series revolutionized energy efficiency with its gearless design and superior energy savings compared to traditional geared systems. Its direct drive motor optimizes performance and also ensures remarkably quiet operation, making it ideal for noise-sensitive environments. With its ability to cover any speed and torque with a single model, MTR 46 AD simplifies design and reduces inventory needs. Now, with the MTR 46 AD, we take this innovation even further. The integrated drive enhances control, efficiency, and ease of installation, making this motorized roller the perfect choice for seamless automation.

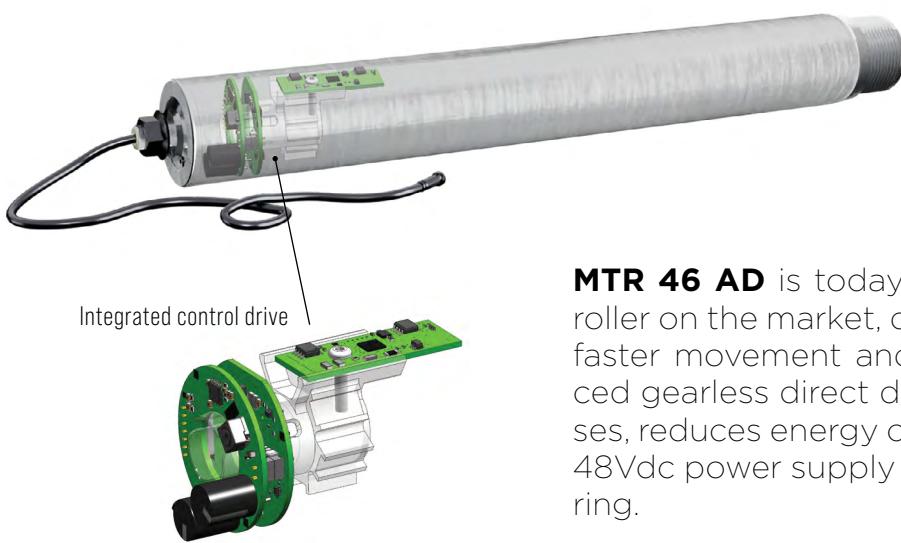
**Experience the future of motion technology-streamlined, powerful, and intelligently designed.**

## Application advantages

Our advanced direct drive technology eliminates the constraints of gearbox ratios, enabling simple torque and speed variations with just one motorized roller model for any conveying application. This innovation simplifies inventory and design while enhancing performance and energy efficiency-key factors for material handling industries striving for optimization and sustainability.

# MTR 46 AD

**Power, efficiency  
and innovative design**



**MTR 46 AD** is today the most powerful motorized driven roller on the market, delivering 75W power ratings, enabling faster movement and higher payload capacity. Its advanced gearless direct drive design minimizes mechanical losses, reduces energy costs, and ensures quiet operation. The 48Vdc power supply enhances efficiency and simplifies wiring.

## Advanced Control and Connectivity

MTR 46 AD features an encoder with 7168 pulses per revolution for precise speed control.

It supports two interface options: Analog Velocity and CANopen, compatible with DS301/DS402 protocols for Industry 4.0 integration. A standard 5 pin - M8 connector ensures easy connection to automation systems.

## Flexible and easy integration

With its gearless design, a single model meets various application needs, simplifying inventory management and maintenance.

The integrated drive reduces wiring and streamline installation. It is available in two versions: a frameless 46 mm cartridge (for 50mm rollers) and a Power Pack solution with a complete 50mm roller.

## Technical data

SPECIFICATION	MTR 46.105
STALL TORQUE	1.05 Nm
PEAK TORQUE	3.2 Nm
RATED SPEED	800 RPM (2 m/s)
RATED POWER	75W @ 48Vdc
POWER SUPPLY	24 and 48 Volt
VERSIONS	Cartridge (46mm), Complete Roller (50mm)

# **>> 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

MTR FL	46	140	13	H1	DO	XXX
Model	Size	Winding	Feedback	Connection	Optional	
1	2	3	4	5	6	



1 Model

**MTR FL 46**

**MTR FL 76**

2 Size

**MTR FL 46** 140

**MTR FL 76** 100

3 Winding

**MTR FL 46** 13

**MTR FL 76** 14

4 Feedback

**H1** Hall Sensor

5 Connection

**DO** - cable output with connectors

## MOTOROLLER FRAMELESS - GEARLESS CARTRIDGE ONLY

MTR AD FL 46 105 29 E2 D3 A XXX

Model Size Winding Feedback Connection Fieldbus Optional

1

2

3

4

5

6

7



1 Model

**MTR AD FL 46**

2 Size

**MTR AD FL 46**

105

3 Winding

**MTR AD FL 46**

29

4 Feedback

**E2** Incremental encoder 7168 ppr

5 Connection

**D3** - cable output with connectors

6 Fieldbus

**A** - Digital I/O  
**C** - CanOpen

# MOTORROLLER POWER PACK - GEARLESS MOTORROLLER WITH TUBE

<b>MTR PP 76 100</b>	<b>14</b>	<b>H1</b>	<b>DO</b>	<b>01</b>	<b>-</b>	<b>80</b>	<b>-</b>	<b>XXX</b>
Model	Size	Winding	Feedback	Connection	Fixed shaft	Tube type	Tube lenght	Indle shaft
1	2	3	4	5	6	7	8	9



**1** Model

**MTR PP 46**  
**MTR AD PP 46**  
**MTR PP 60**  
**MTR PP 76**

**2** Size

<b>MTR PP 46</b>	140
<b>MTR AD PP 46</b>	105
<b>MTR PP 60</b>	150
<b>MTR PP 76</b>	100

**3** Winding

<b>MTR PP 46</b>	13
<b>MTR AD PP 46</b>	29
<b>MTR PP 60</b>	21
<b>MTR PP 76</b>	14

**4** Feedback

<b>H1</b> Hall Sensor
<b>E1</b> Incremental encoder ABZ

**5** Connection

**DO** - cable output with connectors

**6** Fixed shaft

**01** - Male tread

**7**

<b>Tube type<sup>(*)</sup></b>	<b>01</b> - Standard tube	<b>02</b> - Double grooved tube
	<b>04</b> - Poly-V pulley tube <sup>(**)</sup>	<b>05</b> - Double grooved pulley tube
	<b>07</b> - Double grooved and tapered sleeves tube	<b>08</b> - Poly-V and tapered sleeves tube <sup>(**)</sup>
	<b>09</b> - Double grooved pulley and tapered sleeves tube	

<sup>(\*)</sup> for MTR PP 46 only   <sup>(\*\*)</sup>This version is not available for sale in Germany

**8**

Tube lenght in mm<sup>(\*)</sup>

Referral "R" on drawings

<sup>(\*)</sup> For MTR PP 60 lenght is fixed

**9**

Indle shaft<sup>(\*)</sup> AA: hex spring loaded

AB: female thread

AC: poly-V hex spring loaded

AD: poly-V thread

<sup>(\*)</sup> for MTR PP 46 only

## DMR 50-5/50 DRIVE TYPE

DMR	50-5/50	E	C	O
Drive Name	Model	Feedback	Fieldbus	Input logic



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

## PALLET CONVEYOR MOTORROLLER POWER PACK

MTR PP	89	045	04	H1	DO	O1	O1	800	AA	XXX
Model	Size	Winding	Feedback	Connection	Fixed shaft	Tube type	Tube lenght	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 04
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	O1 - Male tread
7	Tube type	O1 - Standard tube
8	Tube	length in mm See drawings reference "R" letter
9	Indle shaft	AA: hex spring loaded AB: female thread
10	Optional	O2 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

# MOTORROLLER 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 46 140 13

Stall torque	Cn0	Nm	1,5
Peak torque	Cpk	Nm	4,5
Rated torque	Cn	Nm	1,35
Rated working speed	nM	rpm	800
Rated voltage	Un	Vdc	48
Maximum working speed @ 24Vdc	nmax	rpm	500
Maximum working speed @ 48Vdc	nmax	rpm	1000
Rated output power	Pn	W	115
Stall current	In0	Arms	3,3
Peak current	Ipk	Arms	10,61
Rated current	In	Arms	3
Torque constant	Kt	Nm/Arms	0,45
Voltage constant	Ke	Vrsm/ Krpm	27,6
Phase/phase resistance @25°C	Rff	Ohm	1,23
Phase/phase inductance	Lff	mH	2,81
Electrical time constant	Te	ms	2,3
Rotor inertia	Jm	Kg cm <sup>2</sup>	6,1
Motor weight	m	Kg	2,73
Axial shaft load @800 rpm	Fa	N	
Radial shaft load @800 rpm	Fr	N	

# MOTORROLLER 46 AD 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	INSULATION SYSTEM	UL /CSA cURus, DV155J File nr.:E216686
CE certified			

## Motoroller 46 AD 105 29

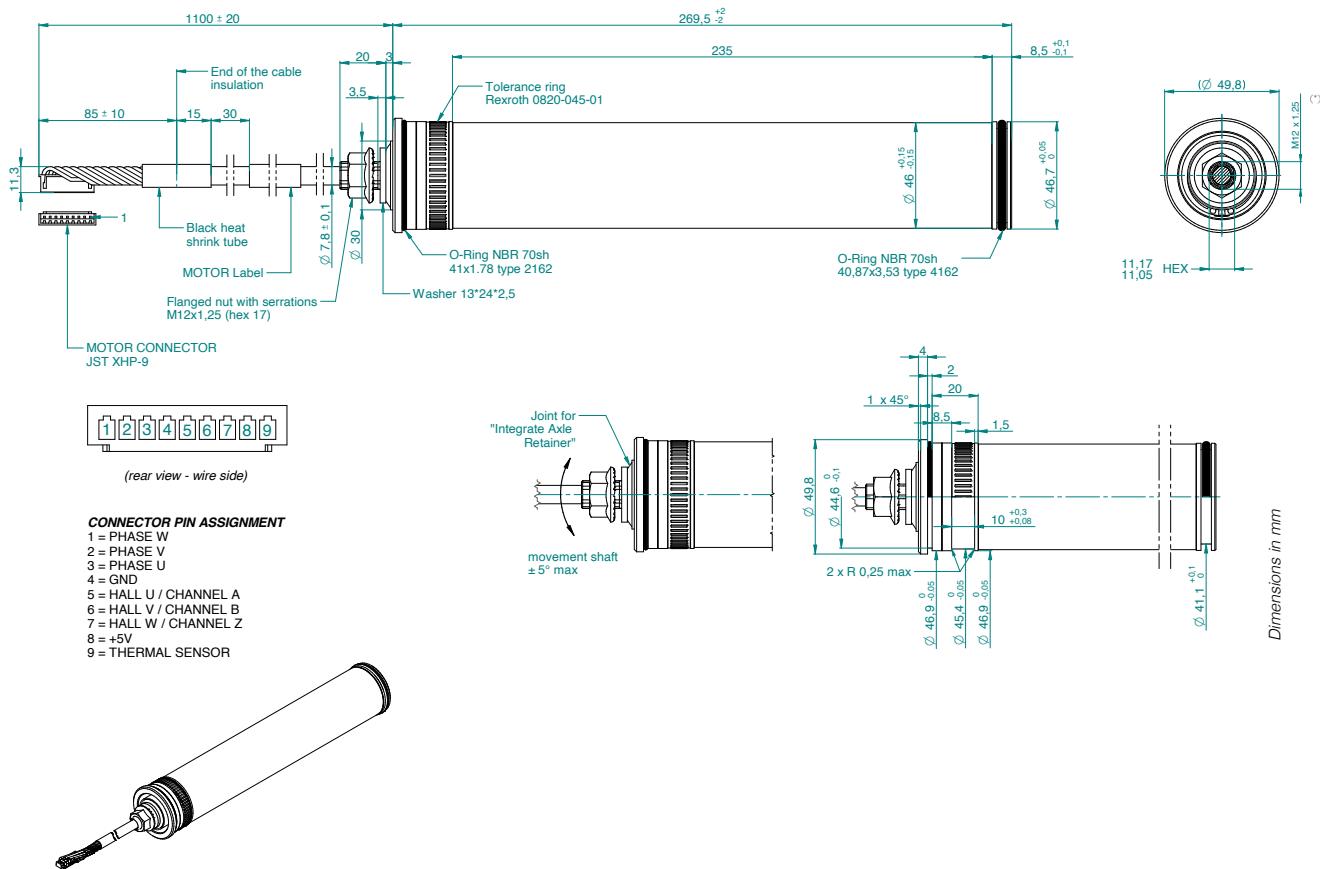
Stall torque	Cn0	Nm	1,0
Peak torque	Cpk	Nm	2,2
Rated torque	Cn	Nm	0,9
Rated working speed	nM	rpm	380
Rated voltage	Un	Vdc	48
Maximum working speed @ 24Vdc	nmax	rpm	1000
Maximum working speed @ 48Vdc	nmax	rpm	1150
Rated output power	Pn	W	35
Stall current	In0	Arms	1,47 - 2,09
Peak current	Ipk	Arms	3,45 - 4,87
Rated current	In	Arms	1,37 - 1,93
Torque constant	Kt	Nm/Arms	0,68
Voltage constant	Ke	Vrsm/ Krpm	41,0
Phase/phase resistance @25°C	Rff	Ohm	3,85
Phase/phase inductance	Lff	mH	8,20
Electrical time constant	Te	ms	2,13
Rotor inertia	Jm	Kg cm <sup>2</sup>	4,7
Motor weight	m	Kg	4,4
Axial shaft load @800 rpm	Fa	N	110
Radial shaft load @800 rpm	Fr	N	220 (applied on the rotor's centering)

### DRIVE DATA

Rated output power	W	50
Efficiency at rated power	%	> 95 %
Operative supply voltage	V	24 ÷ 60
Max voltage	V	80
Rated output current	Arms	2.0
Peak output current (peak time)	Arms (s)	11.0 (3)
Working temperature	°C	-30 ÷ 100

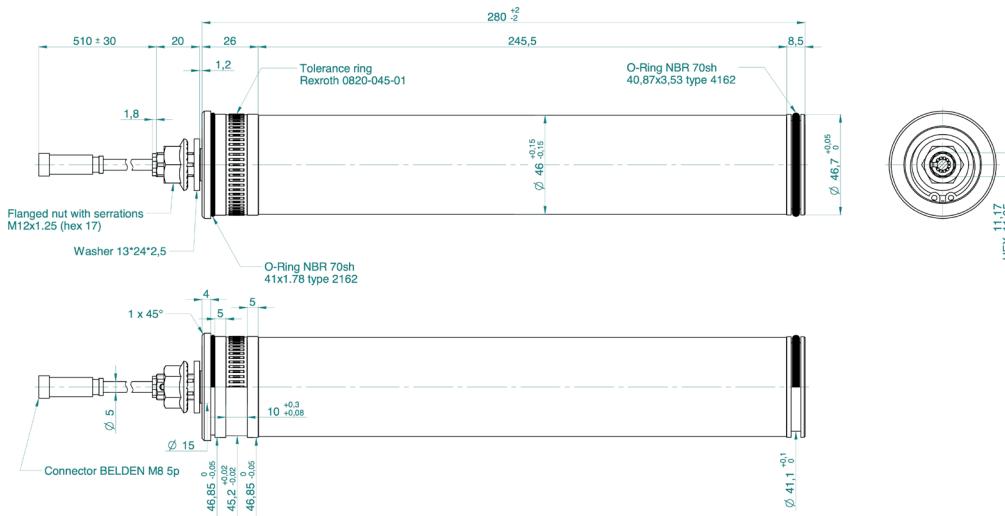
# MOTORROLLER 46 FRAMELESS DIMENSIONS

## Motoroller 46 140



# MOTORROLLER 46 AD FRAMELESS DIMENSIONS

## Motoroller 46 AD 105



Dimensions in mm

### FIELBUS A - DIGITAL I/O

CONNECTOR BELDEN M8 5p

Pin	Cable wire color	Function
1	Brown	MOT+
2	White	DIR
3	Blue	MOT-
4	Black	ERROR
5	Grey	SPEED

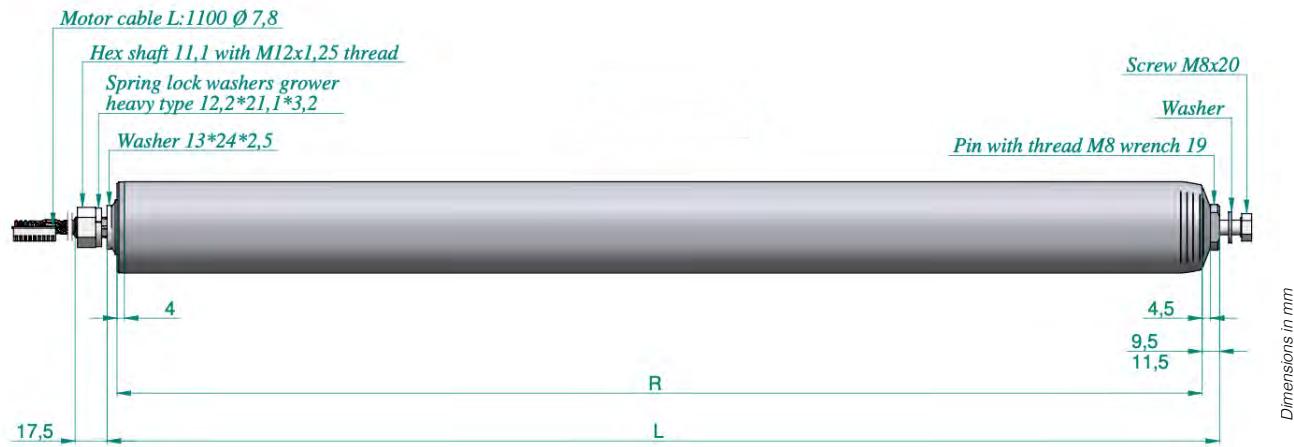
### FIELBUS C - CanOpen

CONNECTOR BELDEN M8 5p

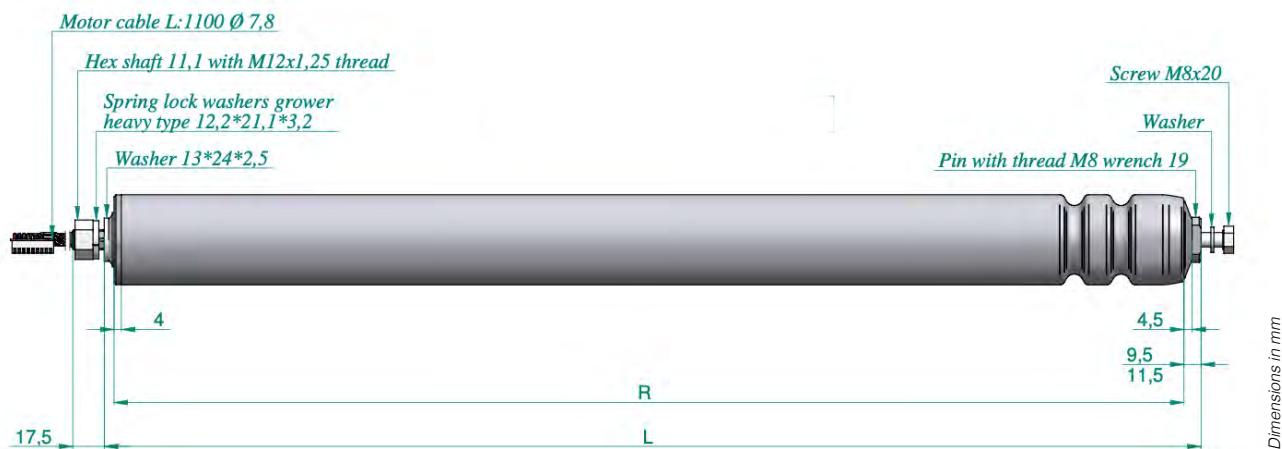
Pin	Cable wire color	Function
1	Brown	Power Supply (+)
2	White	CAN high
3	Blue	Ground GND (-)
4	Black	CAN low
5	Grey	to be def

# MOTORROLLER 46 AND 46 AD POWER PACK TUBE TYPE

## Motoroller 46/46 AD standard tube 01

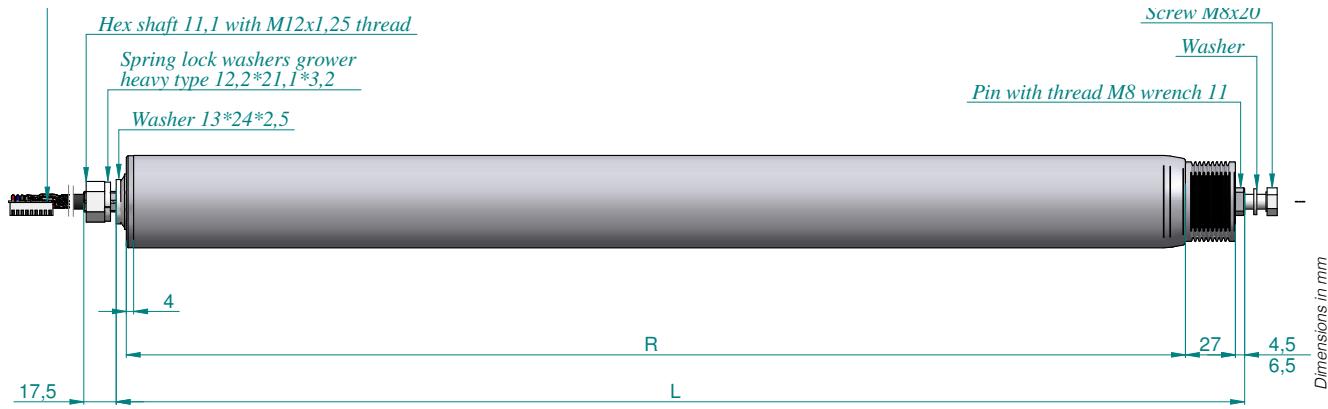


## Motoroller 46/46 AD double grooved tube 02

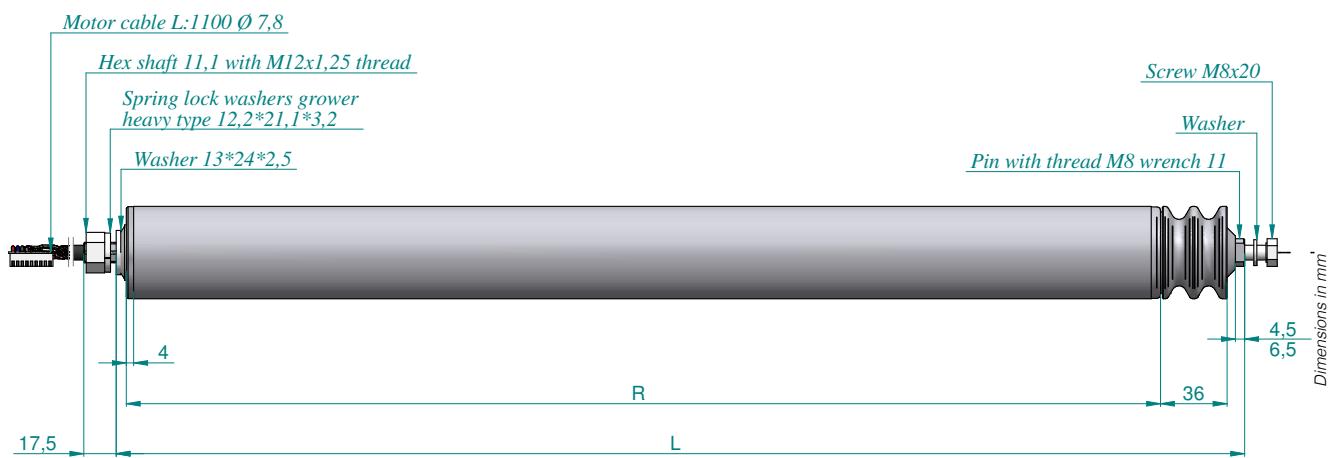


# MOTORROLLER 46 AND 46 AD POWER PACK TUBE TYPE

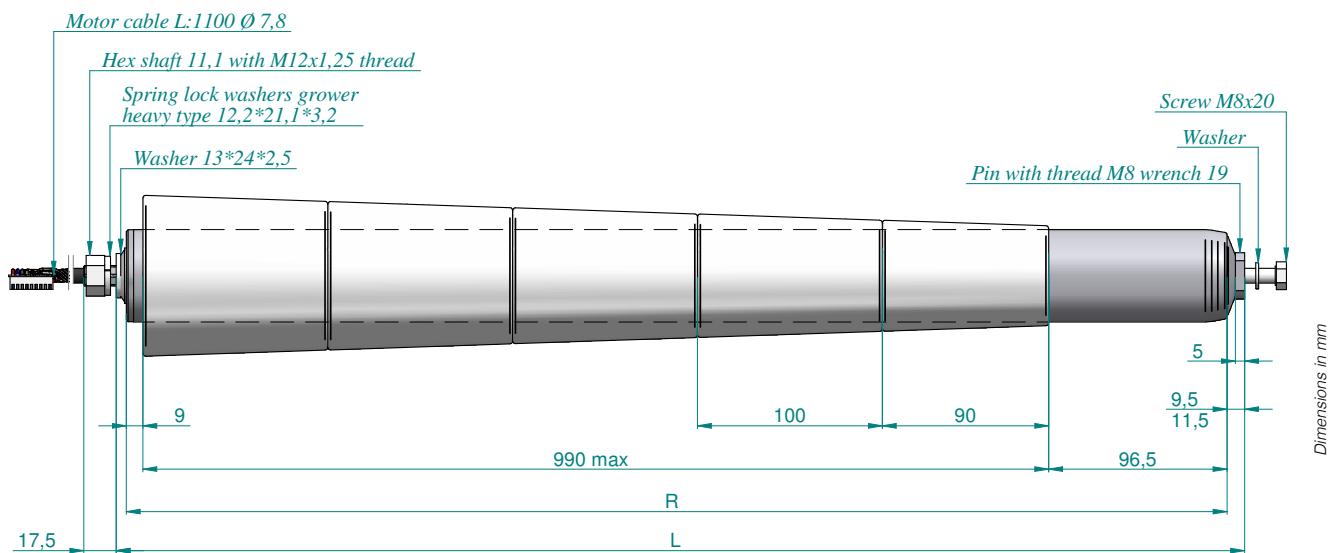
## Motoroller 46/46 AD poly-V pulley tube 04 (\*\*)



## Motoroller 46/46 AD double grooved pulley tube 05

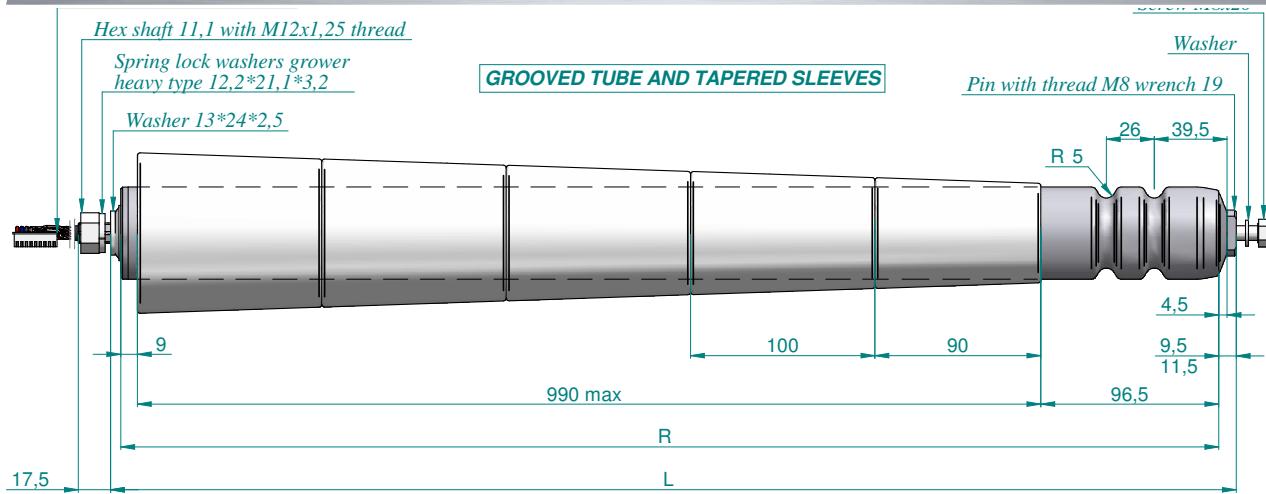


## Motoroller 46/46 AD tapered sleeves tube 06

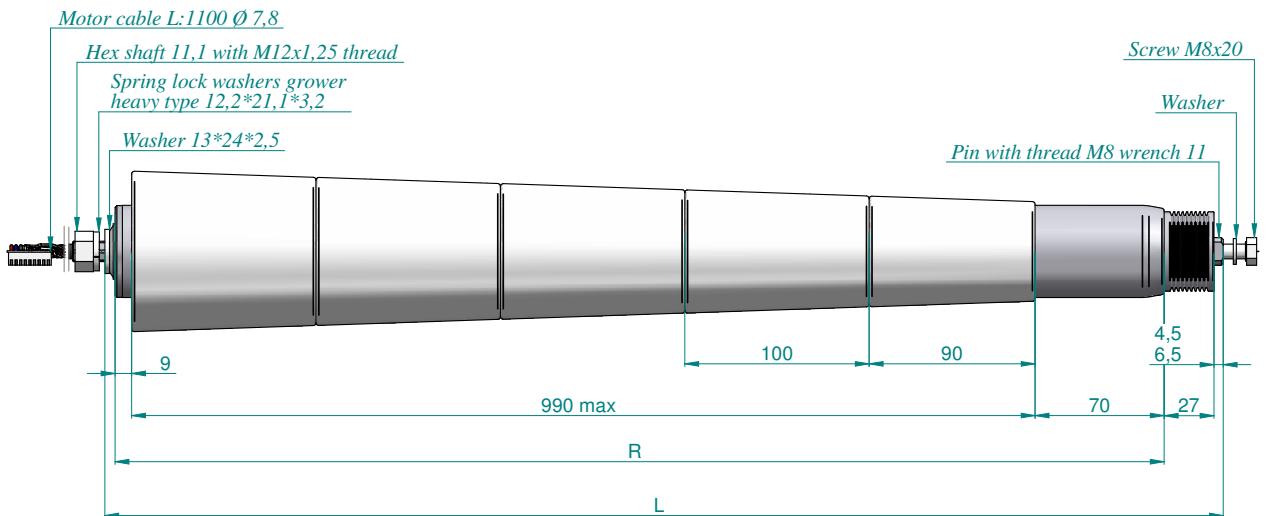


# MOTORROLLER 46 AND 46 AD POWER PACK TUBE VERSIONS

## Motoroller 46/46 AD double grooved and tapered sleeves tube 07

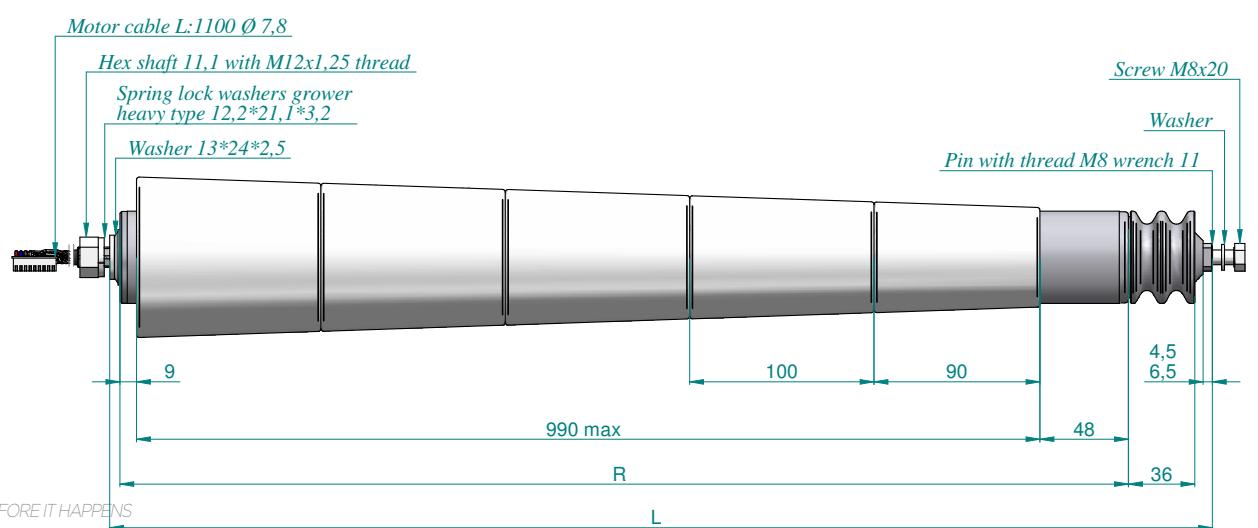


## Motoroller 46/46 AD poly-V pulley and tapered sleeves tube 08



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

## Motoroller 46/46 AD double grooved pulley and tapered sleeves tube 09



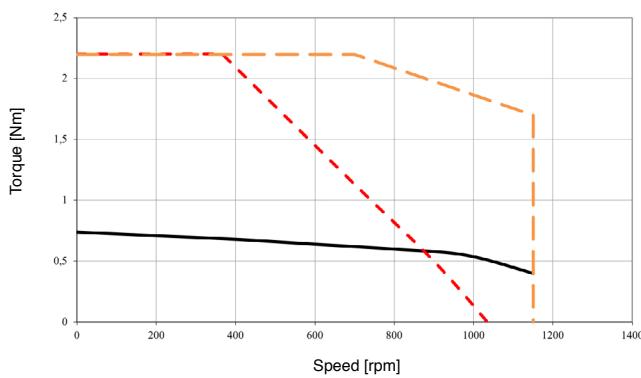
SEE IT BEFORE IT HAPPENS

# MOTORROLLER 46 TORQUE / SPEED CHARTS

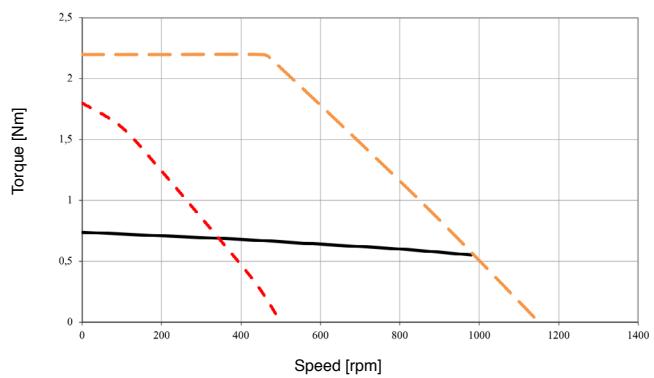
Continuous duty @ rated voltage  
 24 Vdc  
 48 Vdc  
 60 Vdc  
 65 Vdc  
 230 Vac



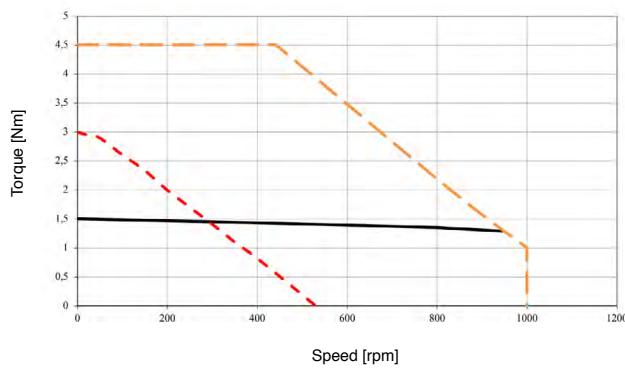
**MOTORROLLER 46 75 06**



**MOTORROLLER 46 75 13**



**MOTORROLLER 46 140 13**



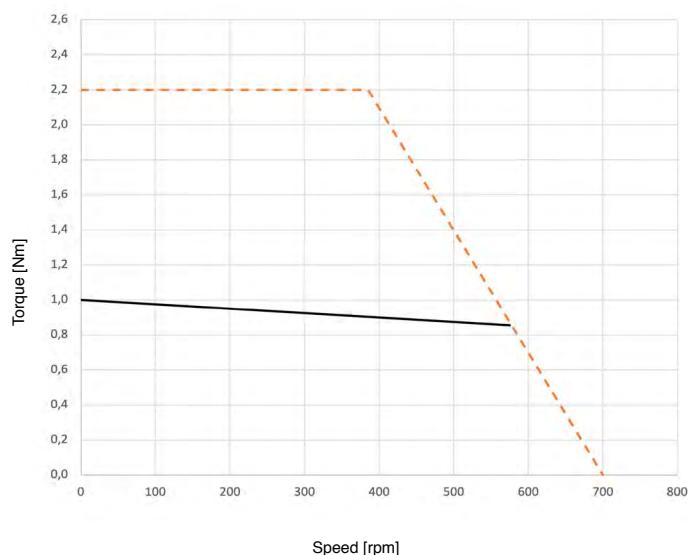
## MOTORROLLER 46 AD TORQUE / SPEED CHARTS

Continuous duty @ rated voltage

—	24 Vdc
—	48 Vdc
—	60 Vdc
—	65 Vdc
—	230 Vac



### MOTORROLLER 46 AD 105



# MOTORROLLER 60 RATINGS AND SPECIFICATIONS

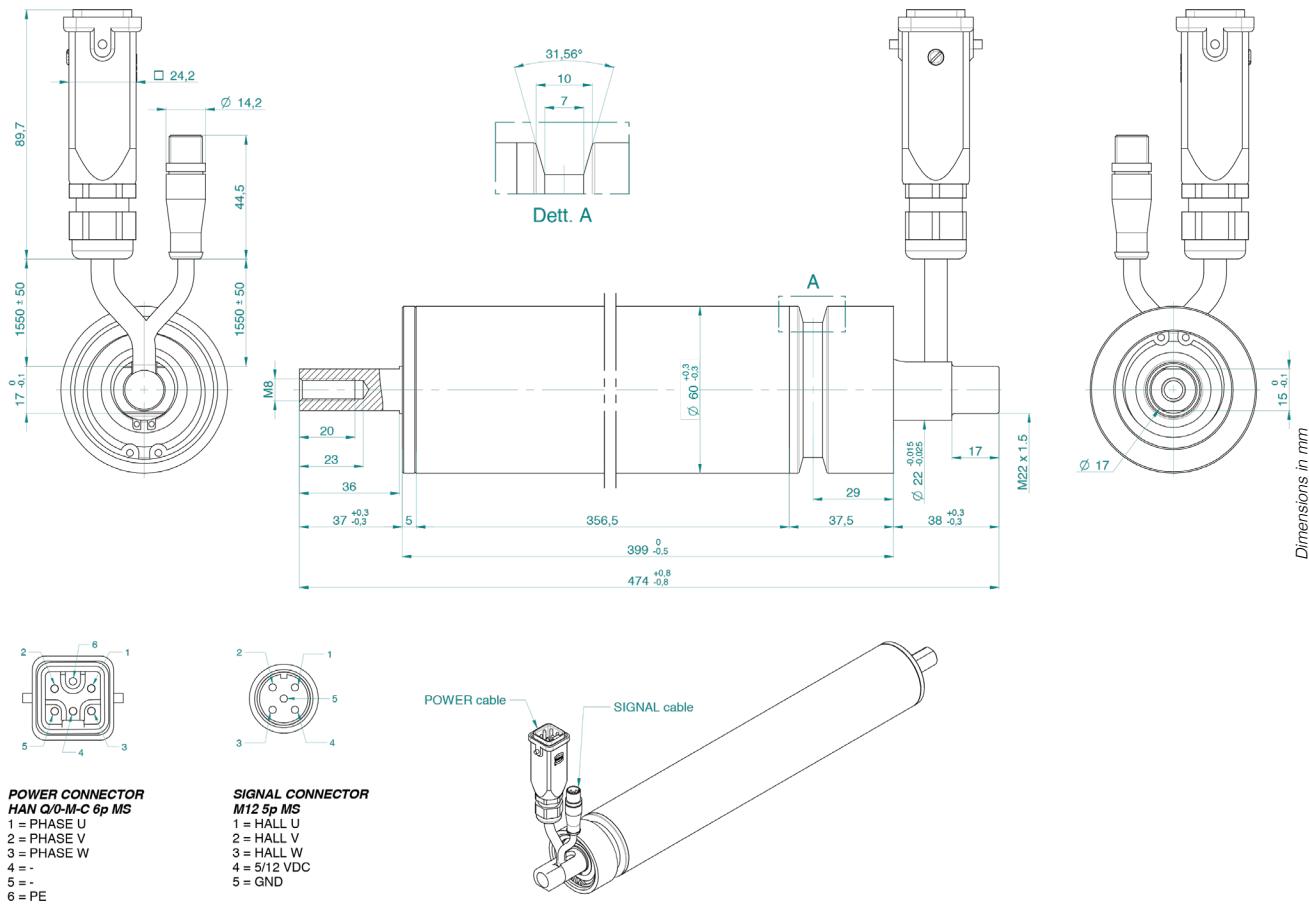
TIME RATING	Continuous	AMBIENT TEMPERATURE	0 to 40 °C
INSULATION CLASS	F	AMBIENT HUMIDITY	5 to 85% (non-condensing)
ENCLOSURE	Totally enclosed. Self-cooled	POLES	28
THERMAL PROTECTION	NTC	UL RECOGNIZED	cURus E468964
CE certified			

## 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	Ipk	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 <sup>2</sup>	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 motor's centering)

# MOTORROLLER 60 POWER PACK DIMENSIONS

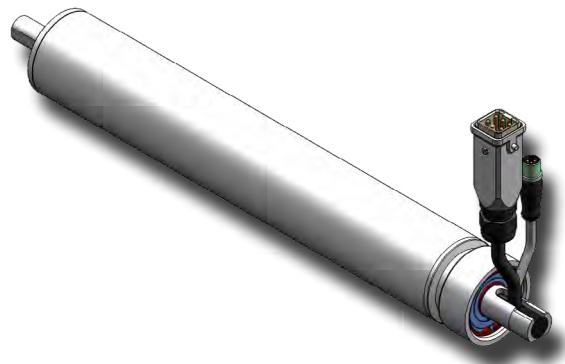
## Motoroller 60 150



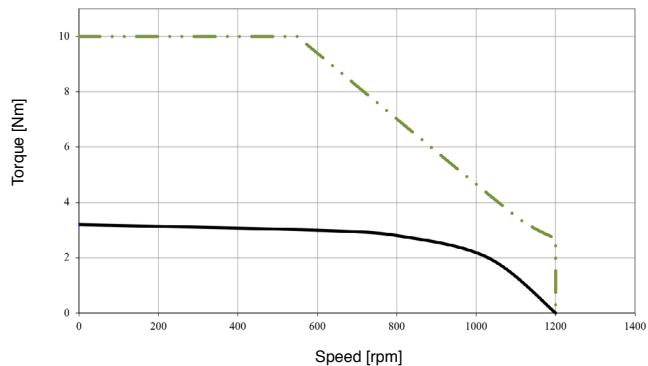
# MOTORROLLER 60 TORQUE / SPEED CHARTS

Continuous duty @ rated voltage

- 24 Vdc
- 48 Vdc
- 60 Vdc
- 65 Vdc
- 230 Vac



## MOTORROLLER 60 150 21



# MOTORROLLER 76 RATINGS AND SPECIFICATIONS

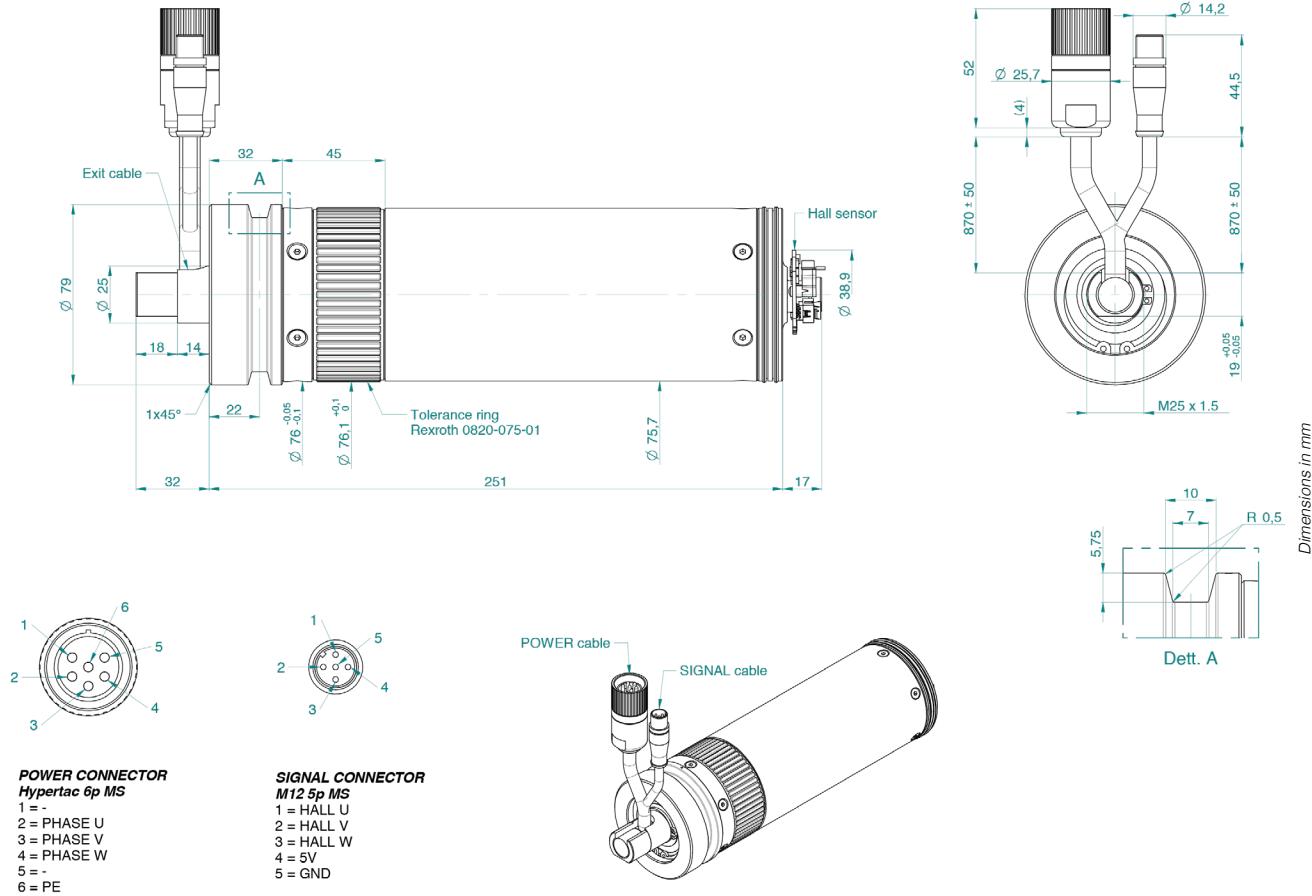
TIME RATING	Continuous	AMBIENT TEMPERATURE	0 to 40 °C
INSULATION CLASS	F	AMBIENT HUMIDITY	5 to 85% (non-condensing)
ENCLOSURE	Totally enclosed. Self-cooled	POLES	28
THERMAL PROTECTION	NTC	UL RECOGNIZED	cURus E468964
CE certified			

## 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	Ipk	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 <sup>2</sup>	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)

# MOTORROLLER 76 FRAMELESS DIMENSIONS

## Motoroller 76 100



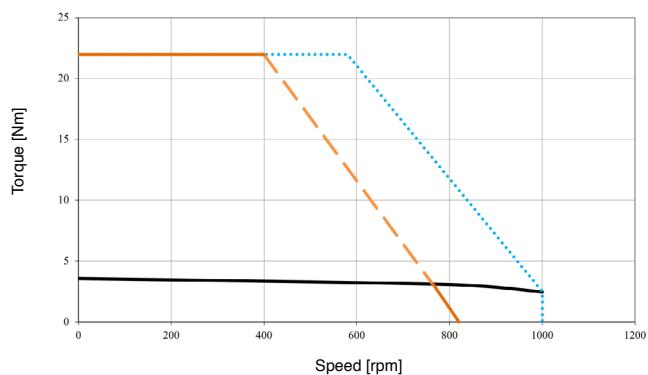
# MOTORROLLER 76 TORQUE / SPEED CHARTS

Continuous duty @ rated voltage

- 24 Vdc
- 48 Vdc
- 60 Vdc
- 65 Vdc
- 230 Vac



## MOTORROLLER 76 100 14



## PALLET CONVEYOR MOTORROLLER 70 RATINGS AND SPECIFICATIONS

TIME RATING	S3 1/2' (Ton = 1' / Toff = 2')	AMBIENT TEMPERATURE	0 to 40 °C
INSULATION CLASS	F	AMBIENT HUMIDITY	5 to 85% (non-condensing)
ENCLOSURE	Totally enclosed. Self-cooled	POLES	8
THERMAL PROTECTION	PT1000	INSULATION SYSTEM	UL /CSA cURus, DV155J File nr.:E216686
CE certified			

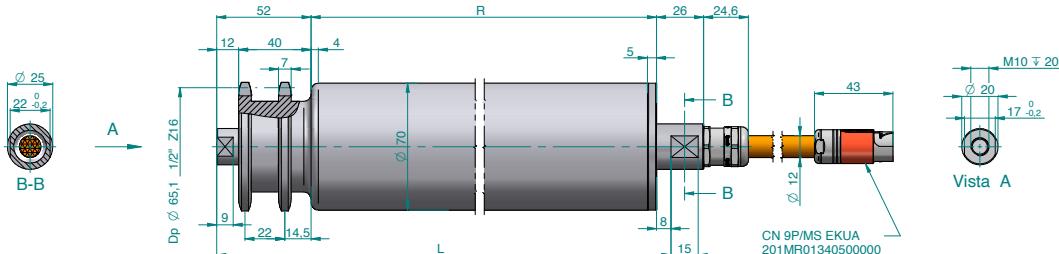
Pallet Conveyor Motoroller 70 045 01    Pallet Conveyor Motoroller 70 045 04

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	Ipk	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 <sup>2</sup>	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 MOTORROLLER 70 DIMENSIONS - type 01

## Pallet Conveyor Motoroller 70 045 power pack reference drawing 01



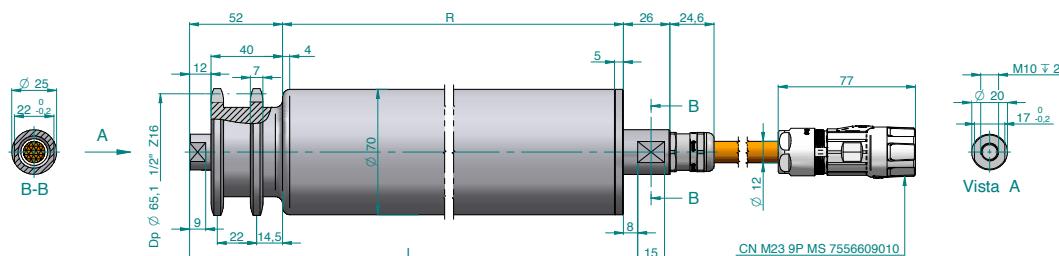
Dimensions in mm

(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



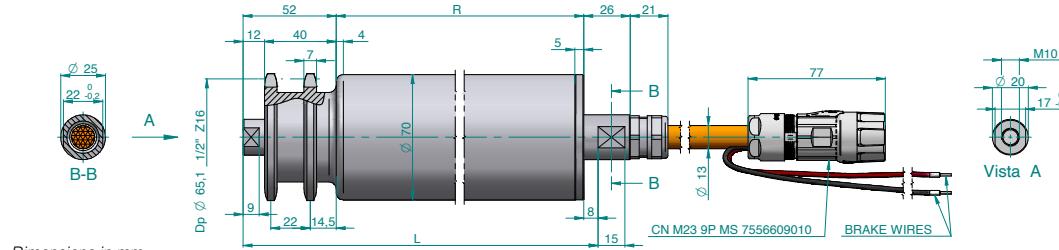
Dimensions in mm

(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 -

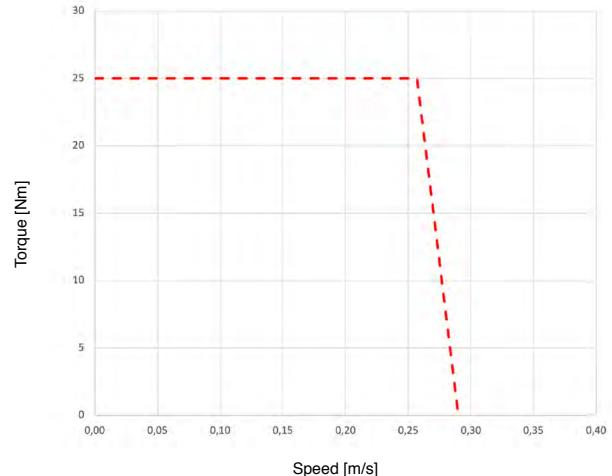
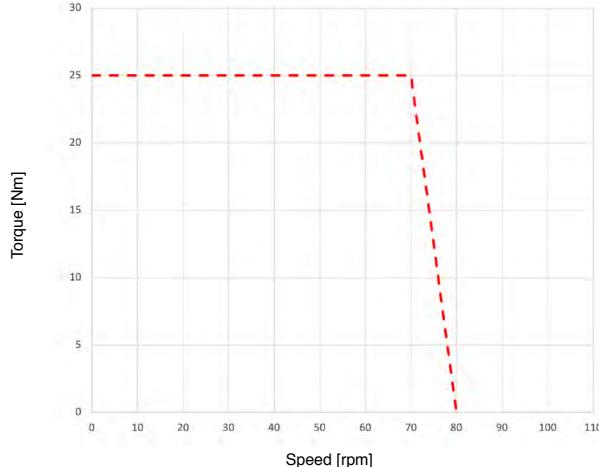
## PALLET CONVEYOR 70 045 TORQUE/SPEED CHARTS

Continuous duty @ rated voltage

- 24 Vdc
- 48 Vdc
- 60 Vdc
- 65 Vdc
- 230 Vac

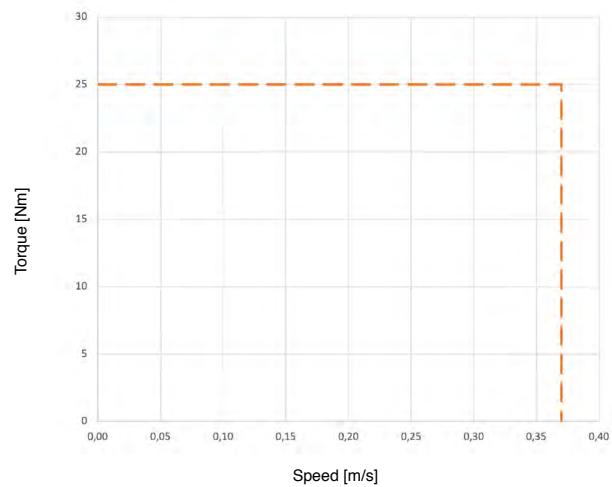
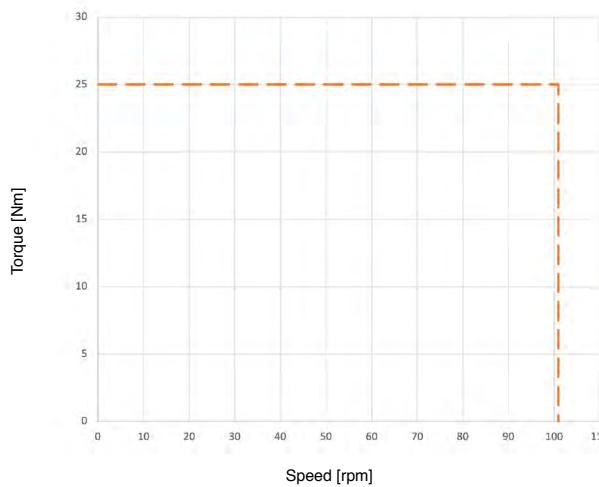
### MOTORROLLER 70 045 01

24Vdc



### MOTORROLLER 70 045 01

48Vdc

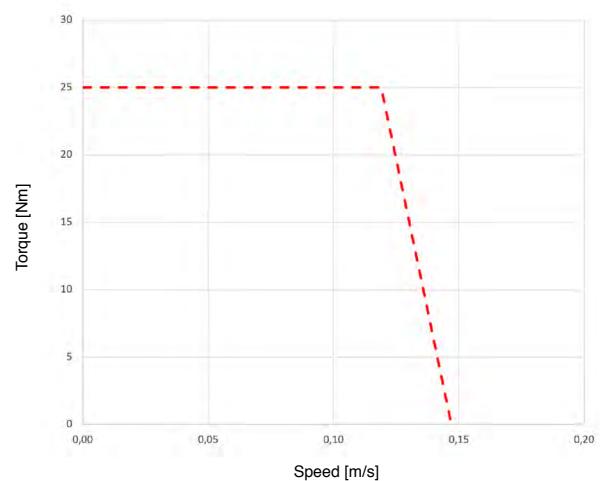
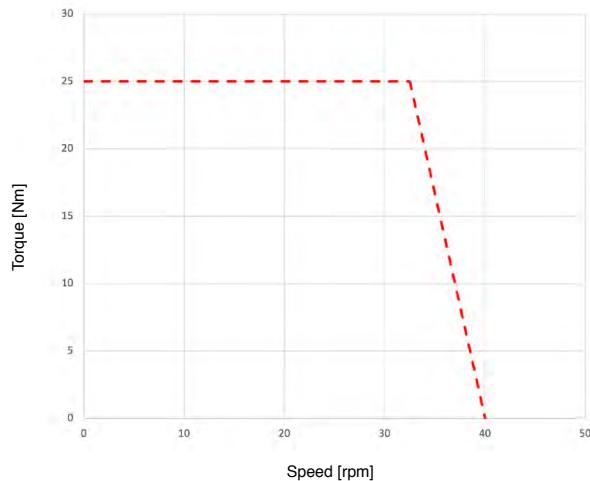


# PALLET CONVEYOR 70 045 TORQUE/SPEED CHARTS

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

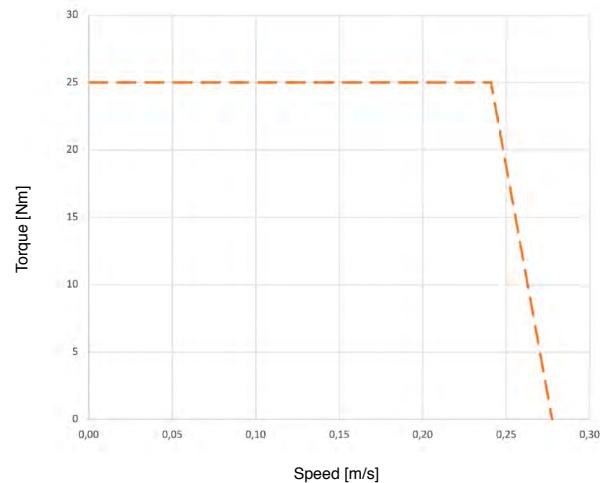
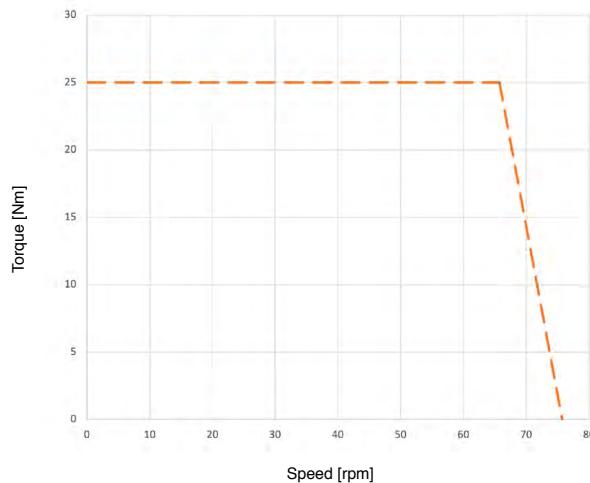
## MOTORROLLER 70 045 04

24Vdc



## MOTORROLLER 70 045 04

48Vdc



## PALLET CONVEYOR MOTORROLLER 89 RATINGS AND SPECIFICATIONS

TIME RATING	S3 1'/2' (Ton = 1' / Toff = 2')	AMBIENT TEMPERATURE	0 to 40 °C
INSULATION CLASS	F	AMBIENT HUMIDITY	5 to 85% (non-condensing)
ENCLOSURE	Totally enclosed. Self-cooled	POLES	8
THERMAL PROTECTION	PT1000	INSULATION SYSTEM	UL /CSA cURus, DV155J File nr.:E216686CE
CE certified			

### Pallet Conveyor Motoroller 89 045 04

Gear ratio	51:1		
Stall torque*	Cn0	Nm	73
Peak torque**	Cpk	Nm	120
Rated torque *	Cn	Nm	62,5
Rated working speed		m/s	0,21 (44,4 rpm)
Rated output power	Pn	W	290
Rated voltage	Un		48 Vdc
Stall current*	In0	Arms	8,8
Peak current	Ipk	Arms	15
Rated current*	In	Arms	8,4
Torque constant	Kt	Nm/Arms	0,187
Voltage constant	Ke	Vrsm/ Krpm	11,3
Phase/phase resistance @25°C	Rff	Ohm	0,64
Phase/phase inductance	Lff	mH	1,8
Electrical time constant	Te	ms	2,8
Rotor inertia	Jm	Kg cm <sup>2</sup>	0,526
Axial load @80 rpm	Fa	N	240 (applied on the rotor's middle)
Radial shaft load @80 rpm	Fr	N	3800 (applied on the rotor's middle)

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

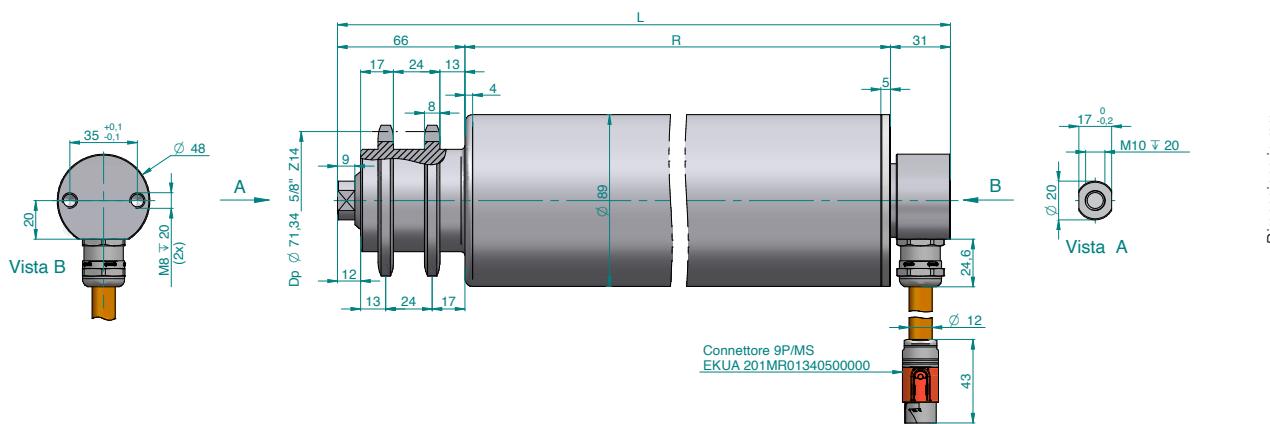
## PALLET CONVEYOR MOTROLLER 89 DIMENSIONS - type 01



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 MOTORROLLER 89 DIMENSIONS - type 02

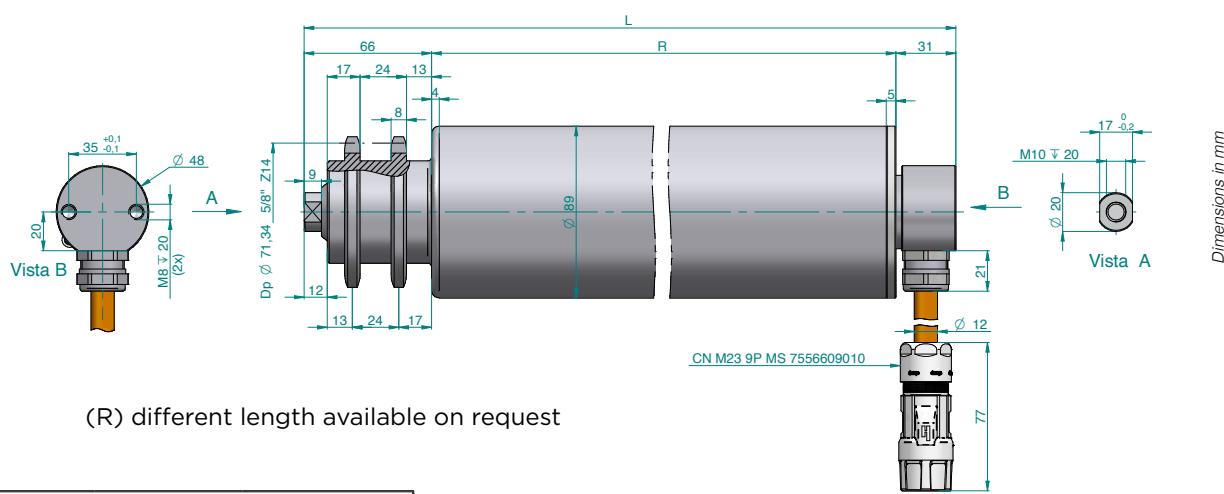
MTR 089 45 - TYPE 02



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



(R) different length available on request

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 MOTORROLLER 89 TORQUE / SPEED CHARTS

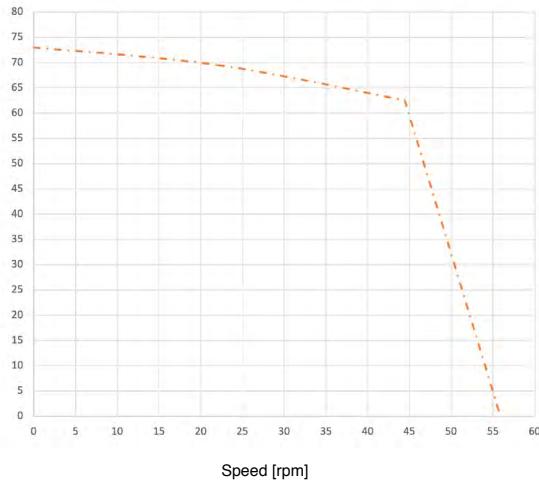
Continuous duty @ rated voltage

- 24 Vdc
- 48 Vdc
- 60 Vdc
- 65 Vdc
- 230 Vac

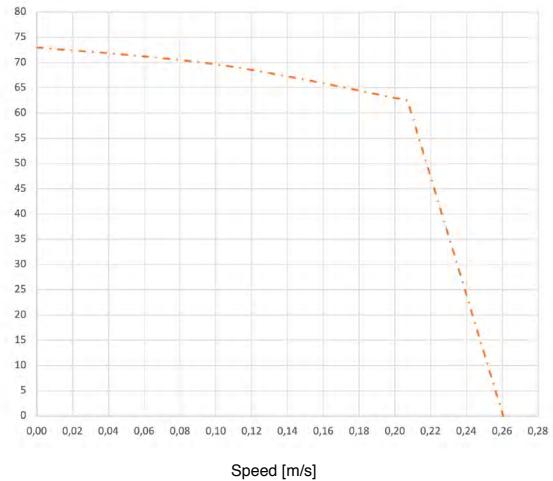
**MOTORROLLER 89 045 04**

**48Vdc**

Torque [Nm]



Torque [Nm]



# 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
Nº of pulses revolution	ppr 84

## E1 INCREMENTAL ENCODER

Motor size	Motoroller 60- 76
Nominal Voltage	Vdc $5-9 \pm 5\%$
Nominal current	mA 100
Electronic type	OPEN COLLECTOR
Zero impulse	ONE AT A LAP
Nº of pulses revolution	ppr 896
Resolution	cpr 3584

## E2 INCREMENTAL ENCODER

Motor size	Motoroller 46 AD
Nominal Voltage	Vdc $5-9 \pm 5\%$
Nº of pulses revolution	ppr 7168

» **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 motorrollers, exploiting its technological advantages based on direct drive without any gear for motion transmission.

## DMR 50-5/50 FEATURES

- > DUAL AXES OPERATION CAPABILITY
- > HALL SENSOR AND ENCODER FEEDBACK
- > PERFECT MATCH WITH GEARLESS MOTORROLLER
- > DMR BROWSER SOFTWARE INTERFACE
- MTR46
- > RS 485 PROGRAMMING INTERFACE
- > I/O PROGRAMMABILITY
- > CAN OPEN FIELDBUS
- > FUSE PROTECTION
- > PHOTO EYE SUPPORT
- > CROSSBELT FUNCTIONALITY
- > 2 INPUT, 2 OUTPUT RELAY EACH AXIS
- > CONVEYOR FUNCTIONALITY
- > SPEED AND ACCELERATION PROGRAMMABILITY
- > 24 V (8-30)

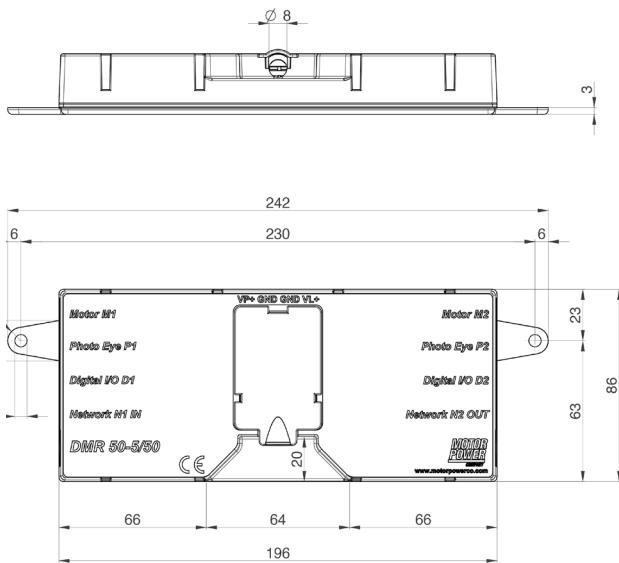


CANopen®

## 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 outputfrequency	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	Analogf Input
4	Output	Fault
5	Output	Configurable

# DMR SERVO DRIVES

DMR 76-10/65 HP is a digital drive for motorrollers 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

MOTORROLLER MTR 76

> USB PROGRAMMING INTERFACE

> PROFIBUS FIELBUS DP V1

> I/O PROGRAMMABILITY

> I/O PROXY DUAL LOOP

> DMR BROWSER SOFTWARE INTERFACE

> FUSE PROTECTION

> CROSSBELT FUNCTIONALITY

> SPEED AND ACCELERATION PROGRAMMABILITY

> HALL SENSOR AND ENDECODER FEEDBACK

> 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 outputfrequency	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

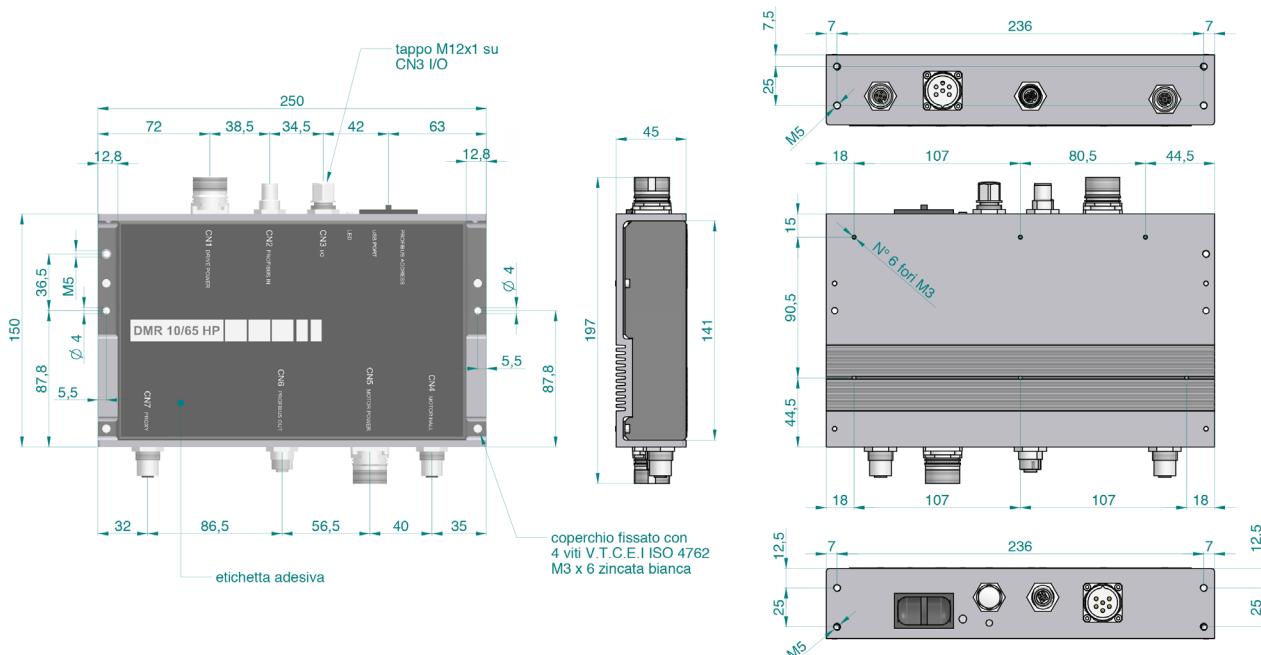
#### SELECTION

- > USB DEVICE INTERFACE FOR CONFIGURATION AND MAINTENANCE
- > CONTROL THROUGH SINUSOISAL 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 ( $+24V_{DC}$ )

## CONNECTION

<b>MOTOR OUTPUT</b>	
PIN	NAME
1	-
2	U
3	V
4	W
5	-
6	PE

<b>FEEDBACK</b>	
PIN	NAME
1	U/A
2	V/B
3	W/Z
4	$5V_{DC}$
5	GND

<b>PROXY DUAL LOOP</b>	
PIN	NAME
1	$+24V_{DC}$ PROXY
2	INRET 123 PROXY
3	GND ( $+24V_{DC}$ )
4	OUT2 NO
5	OUT2 NO
6	IN7 PROXY
7	$+24V_{DC}$
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



CE

# 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

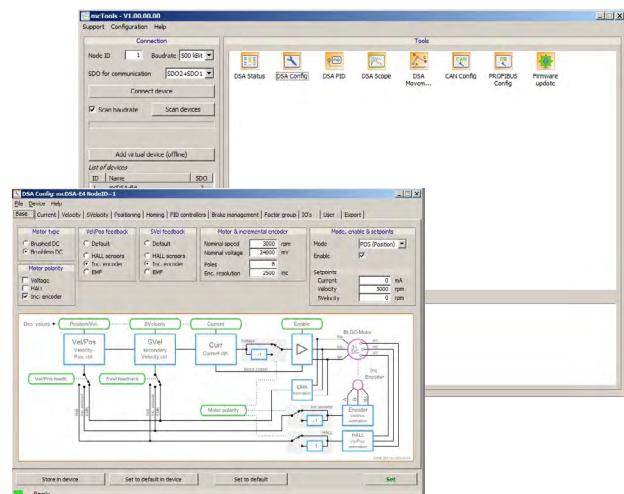
## LITE PRO USER INTERFACE

> 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 Motorrollers 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 motorrollers.

## 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

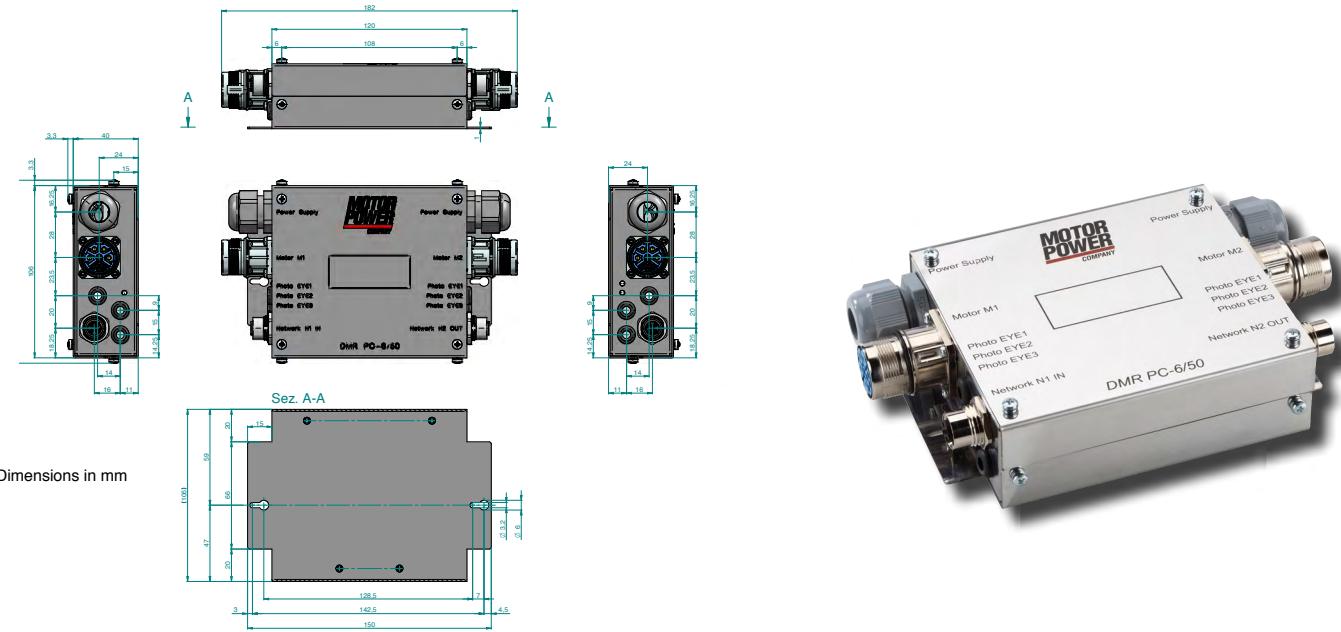


## DMR PC 6/50 PRODUCT DATA

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 outputfrequency	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

# **SERVO DRIVE**

## **DMR PC-6/50 PRODUCT DIMENSIONS**



# **DMR PC-6/50 PRODUCT DATA**

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

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

<b>PHOTO EYE PG AND INTERNAL CONNECTOR</b>		
<b>PIN</b>	<b>FUNCTION</b>	<b>DESCRIPTION</b>
<b>1</b>	Power Supply	24 V power supply
<b>2</b>	Photo Eye Input 1	Input Signal
<b>3</b>	Gnd	0 Vdc
<b>4</b>	Power Supply	24 V power supply
<b>5</b>	Photo Eye Input 2	Input Signal
<b>6</b>	Gnd	0 Vdc
<b>7</b>	Power Supply	24 V power supply
<b>8</b>	Photo Eye Input 3	Input Signal
<b>9</b>	Gnd	0 Vdc

## NOTE

## NOTE

**MOTORS**

**MOTION CONTROL**

**MECHATRONICS**

# **MOTOR POWER**

**COMPANY**

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