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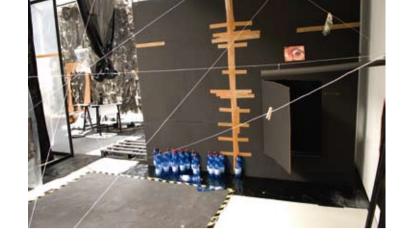






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# NTERROL RP

R T

He lives in dreams. He loves the dark arts and arising out of the unconscious. All this is what Steffen Geisler represents in grandiose spatial art with theatre-like

installations and bold imagery.

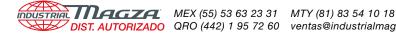


This Berlin artist allowed his unusual works to convert the familiar into the alien and the alien into the familiar when his art was exhibited at Interroll's Swiss headquarters in Sant'Antonino - thus, he provokes. To think about - To rethink - To consider in advance.

He stimulates the explorer's spirit and challenges toward innovative creativity. Exactly into that which turns even good conveyor technology into something decisively better.









### WHO IS INTERROLL?

Interroll is one of the world's leading specialists within the field of materials handling, logistics and automation. Headquartered in Sant'Antonino, Switzerland, the exchange-listed company employs some 1,400 people at 28 enterprises around the globe.

#### What does Interroll produce?

At the airport you lift your suitcase onto the conveyor belt next to the check-in counter: integrated drum motors and idlers made by Interroll drive the belt and direct your baggage to its destination. - Before soft drinks, packaged foodstuffs and non-food goods can find their way to the supermarket shelves they have to be organised and dispatched by distribution centres equipped with dynamic pallet flow modules designed by Interroll. - And then there's the new jacket you ordered from a major mail-order company, processed by an Interroll Crossbelt Sorter at the distribution centre and prepared for immediate dispatch.

integrators, multinational companies and end-users. Interroll serves more than 23,000 customers across all continents.

#### Interroll - a brand that provides triple guarantees

Three globally operating business units located under one roof in a strategic holding company in the Swiss town of Sant'Antonino provide clear market and product-specific guidance for the group's activities: Interroll Drives & Rollers, Interroll Dynamic Storage, and Interroll Automation.

#### Which customer requirements does Interroll meet?

From the initial idea until a material flow system is ramped up, Interroll focuses on the needs of the different customer and project partners.

Interroll supports users, planners, and consulting firms with: Application consultancy, worldwide references, access to the latest innovations, worldwide consistent quality, energy and space-saving solutions with opera-







#### In which sectors are Interroll's core products used?

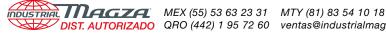
Designed as core products for key locations along materials flow systems, Interroll solutions have proved particularly popular in the food and beverage industry, in the field of airport logistics (baggage conveying and security technology), in the courier, express delivery and postal sector, in the area of logistical services, as well as in the industrial and healthcare sectors.

#### Who are Interroll's customers?

Interroll's range of state-of-the-art conveyor components, such as drum motors, is targeted principally at regional system engineering companies and original equipment manufacturers. Conveyor modules (e.g. for dynamic storage solutions) and subsystems (e.g. crossbelt sorters) are supplied mainly to alobal system tional simplicity and safety.

Users take advantage of a short amortization period (2-3 year return on investment), low maintenance costs, price-effective operations (savings in energy and space), low noise levels, above-average life-span and quality, 24/7 service, and user friendly documentation - in short - of everything which optimizes the "Total Cost of Ownership".

Interroll, as a partner with financial strength, offers system integrators and OEMs: Layout and product advice, knowhow obtained from worldwide references, a comprehensive range of modular products that are rapidly available anywhere in the world, have specific installation instructions, abbreviated installation times, and simplified integration of pre-installed product solutions (plug and play) which correspond to industry standards (EC. UL. etc.).



#### KEY MARKETS



Food & Beverage



Airport



Courier/Parcel/Mail



Distribution



Industry



Health Care

### INTERROLL DRIVES&ROLLERS

### THE HEART OF **CONVEYOR TECHNOLOGY**



For a long time now, efficiency of material flow is becoming a synonym for industrial success. With an experienced eye for the big picture, we offer you the kind of components that are versatile and essential building blocks in the portfolio of any successful planner or developer.

- Drum Motors and Idler Pulleys
- Zone-controlled RollerDrives
- Gravity Rollers
- Fixed Drive Rollers
- Friction Drive Rollers
- **Tapered Rollers**
- Conveyor Wheels
- Omniwheels
- Ball Transfer Units
- **Roller Tracks**

Our product portfolio represents a proven quality standard for dynamic, efficient material flow across all continents and in all sectors. Rapidly delivered and installed. Interroll devices convey, accumulate, insert, remove, sort and combine goods. Powered or gravity driven. Made to perform - beyond all boundaries.

### INTERROLL

### INTERROLL DYNAMIC STORAGE

### INTERROLL AUTOMATION

### THE HEART OF ORDER PICKING

### THE HUB OF DISTRIBUTION LOGISTICS





Interroll's dynamic storage works without energy, is economical, and is user friendly. It is designed for fastmoving goods that have to be picked and quickly conveyed to consumers, The principle is as simple as it is ingenious. Instead of statically storing the pallets, allow them to be purely assorted and to flow through gravity channels equipped with Interroll flow storage modules. It includes making maximum use of minimal space. And because the needs of our customers are as diverse as their products, our central and peripheral subsystems offer unlimited design options.

- Flow Storage
- Modules
- **Speed Controllers**
- Conveyor Rollers
- Safety Separators
- **Universal Connectors**
- Wheel Flow
- Pushback
- Flex Flow
- Roller Flow

The Return on Investment (ROI) for the operator is less than two years. Of course, "Just in Time" comes as standard.

Millions of items travel through the world's flow of goods every day. Ever more varied, individually commissioned products must be delivered on time to the correct goal. This is a trend that assumes a performance based logistics system with economic material flow solutions. Interroll's conveyor modules and subsystems are always ready for systems and their key locations.

- Crossbelt Sorters
- Belt Curves
- Spiral Curves
- Belt Conveyors
- Roller Conveyors
- Conveyor modules for efficient unit-load handling with zero-pressure accumulation (Intelliveyor)
- Merges

Precisely pre-assembled at the factory and rapidly delivered, the conveyor modules and subsystems can be easily integrated into the larger complete system plug and play. They provide short return on investment periods (2-3 years) and the ability to adjust with future growth.

#### BRAND, THREE PILLARS A C

















# PROVEN WORLDWIDE: CORE PRODUCTS OF INTERROLL AUTOMATION EXAMPLE - POSTAL SERVICES

Logistics and distribution are among the most rapidly evolving disciplines in today's fast-track business arena. Little wonder, given the millions of deliveries made each day around the globe. Individually picked, each item has to arrive at the right time and the right place. Here at the Swiss Post distribution centre in Zürich-Mülligen four state-of-the-art Interroll Crossbelt Sorters help ensure that letters always find their destination. Two of them are deployed at the incoming unit and the picking station, where they sort up to 10,000 mail totes per hour. Around the clock. Thanks to Interroll's cutting-edge Crossbelt Sorters, distribution centres can always play it safe. Technically and financially.











## CUSTOMER **BENEFITS** AT A GLANCE

#### Low total cost of ownership

- Significantly low energy consumption
- Low installation cost due to quick and easy installation
- Maintenance free operation
- Safe low voltage technology
- Quick return on investment

#### On-hand easy concept of conveyor components

- Thoroughly customer oriented design
- Excellent matching components for best application fit
- Easy control thru digital I/O

#### Worldwide after sales service

#### **Enhanced work environment**

- Worker friendly low noise emission
- Space saving design

High efficiency due to energy saving drive technology.



### ROLLERDRIVE

The design ruts of RollerDrive go back to the Universal Conveyor Roller Platform 1700. All basic dimensions are the same, which enables the user to design a conveyor free of any external drives and exposed motor stations. This gives the Designer more freedom in creating flexible conveyor solutions, then using conventional AC technology.

All known advantages of the Interroll Universal Conveyor Roller, like silent run thru polymer components and vibration insulation, can be also found in the RollerDrive design.

The soft and hard ware design of DriveControl also supports the general flexibility of conveyors using RollerDrive. There is a good quantity of digital I/Os to integrate RollerDrive in each new or retrofitted system.

Electronic and mechanical commutated motors are the core of RollerDrive.

Following ergonomical principles each RollerDrive is operating at an extraordinary low noise level. To achieve that a high sophisticated vibration decoupling of motor and gear box is used. Thus the gear box is also protected against shock loads which increases the operation time and minimizes wear.

The motor is attached to a one to three stages planetary gear box, which transmits its torque via a non slip drive assembly to the tube.

The RollerDrive is supported by two bearing houses sitting in the opposed end of the tube. Both are derivative from long proven Interroll standard housings.

In the conception stage of a RollerDrive application it is important to answer following points most accurate:

- Load
- Speed
- Cycles per minute
- Geometry of the box
- Material of the box, specifically the bottom
- Maximum allowable after run
- Existing controls to be connected to RollerDrive
- Environment in regards to specific protection rate

Basically all RollerDrives are protected according to Industrial Protection rate IP54. However there are special versions available how exceed that and reach IP66.

All bearing houses are made of electro conductive techno polymer. That prevents the typical conveyor problem of electro static charged boxes and rollers. The energy can flow easy and uncritical thru the housing and bearing to the side frame of the conveyor. It is important that the side frames all are grounded very good.

# ROLLERDRIVES OVERVIEW

in the the the the

Technical		for easy and low noise applications	for standard duty applications	EC200
characteristics	1 if a time [h]	T 000	45,000	45,000
	Life time [h]	5,000	15,000 34.0 - 260.0	15,000
	Transport speed [fpm]	25.0 - 200. 0		5.3 - 192.7
	Protection rate	IP54	IP54	IP54
	Noise [dB(A)]	50	55	55
	Nominal torque [in-lbf]	2.8 - 22.0	3.3 - 26.6	6.2 - 31.9
	Max. peak torque [in-lbf]	9.8 - 77.0	8.9 - 100.0	10.6 - 70.8
	Mechanical performance [W]	13	18	25
	Tube diameter [in]	1.9	1.9	1.9
_	Mechanical failsafe brake			
Torque				
transmission				
For straight lines	Straight	•	•	•
	O-ring grooves	•	•	•
	O-ring hub	•	•	•
	PolyVee	•	•	•
For curves	O-ring grooves	•	•	•
	O-ring hub	•	•	•
	PolyVee	•	•	•
Type of commutation				
	Mechanical	•		
	External		•	
	Internal			•
Controls				
DriveControls	DC-EC100 see p. 52		•	
	DC-EC200 see p. 54			•
ZoneControls	HC-EC100 see p. 56		•	
	HC-EC110 see p. 58			
Conveyor roller				
<del>-</del>	Series 1700	•	•	•
	Series 3500	•	•	•
		from page 16	from page 22	from page 28





**RollerDrives Overview** 

for heavy duty applications	for decline applications	for moisture applications EC110 IP66
15,000	15,000	15,000
30.0 - 475.0	34.0 - 260.0	30.0 - 475.0
IP54	IP54	IP66
55	55	55
3.0 - 37.6	3.3 - 26.6	3.0 - 37.6
11.0 - 117.0	8.9 - 100.0	11.0 - 117.0
31	18	31
1.9	1.9	1.9
	•	
•	•	•
•	•	•
•	•	
•	•	
•	•	•
•	•	
•	•	
•	•	•
	•	
	•	
•		•
•	•	•
•	•	•
from page 32	from page 38	from page 46

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# ROLLERDRIVE HOBT

Chara	acteristics	•		Tube ma	iterial	Shaft ma	aterial	Tube si	eeving	Motor	cable
	V	M <sub>N</sub>	M <sub>A</sub>	Steel		Steel		PVC	PU	Length	
	[fpm]	[in-lbf]	[in-lbf]	Zinc plated	Stainless	Zinc plated	Stainless	0.05 in	1/8 in	15 in	96 in
2	200	2.8	9.8	•	•	•	•	•	•	•	•
6	150	3.8	13.3	•	•	•	•	•	٠	•	•
24	100	5.75	20.1	•	•	•	•	•	•	•	•
36	66	8.8	30.8	•	•	•	•	•	٠	•	•
18	48	12.3	43.1	•	•	•	•	٠	٠	•	•

- Mechanical performace 13 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- Mechanical commutated
- 7 gear ratios

- 5,000 hours minimal life time
- Protection rate IP54
- Noise 50 dB(A), mounted in a conveyor frame
- Motor cable with open leads



#### **RollerDrives**

for easy and low noise applications

**HOBT** 

Motor shaft	Idler sh	aft							Lengt
HEX1	Straight		Groove <sup>-</sup>	1.25/1.76	O-ring hu	ıb	PolyVee	hub	Min. RL
	F01	H01	F01	H01	F02	H02	F03	H03	[in]
•	•								9.80
		•							11.25
			•						12.13
				•					12.13
					•				11.77
						•			12.20
							•		11.77
								•	12.20
•	•								9.80
		•							11.25
			•						12.13
				•					12.13
					•				11.77
						•			12.20
							•		11.77
								•	12.20
•	•								9.80
		•							11.25
			•						12.13
				•					12.13
					•				11.77
						•			12.20
							•		11.77
								•	12.20
•	•								9.80
		•							11.25
			•						12.13
				•					12.13
					•				11.77
						•			12.20
							•		11.77
								•	12.20
•	•								9.80
		•							11.25
			•						12.13
				•					12.13
					•				11.77
						•			12.20
							•		11.77
								•	12.20

#### Legend:

Gear ratio

Speed of transport

Nominal torque  $M_N$ 

M Peak torque

**HEX1** M12 x 1.5 7/16 in, hexagonal

**H01** 7/16 in, HEX spring loaded

H02 7/16 in, HEX spring loaded, O-ring

**H03** 7/16 in, spring loaded, PolyVee

**F01** Female 5/16 in, floating

**F02** Female 5/16 in, floating dual bearing

F03 Female 5/16 in, floating PolyVee

D



# ROLLERDRIVE HOBT

Charac	teristics			Tube ma	terial	Shaft ma	nterial	Tube sl	eeving	Motor c	able
i	V	M <sub>N</sub>	M <sub>A</sub>	Steel		Steel		PVC	PU	Length	
	[fpm]	[in-lbf]	[in-lbf]	Zinc plated	Stainless	Zinc plated	Stainless	0.05 in	1/8 in	15 in	96 in
64	37	15.0	52.5	•	•	•	•	•	•	•	•
96	25	22.0	77.0	•	•	•	•	٠	٠	٠	•

- Mechanical performace 13 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- Mechanical commutated
- 7 gear ratios

- 5,000 hours minimal life time
- Protection rate IP54
- Noise 50 dB(A), mounted in a conveyor frame
- Motor cable with open leads



#### **RollerDrives**

for easy and low noise applications

**HOBT** 

Motor shaft	Idler shaf	ft							Length
HEX1	Straight		Groove 1.25	5/1.76	O-ring hub		PolyVee huk	)	Min. RL
	F01	H01	F01	H01	F02	H02	F03	H03	[in]
•	•								9.80
		•							11.25
			•						12.13
				•					12.13
					•				11.77
						•			12.20
							•		11.77
								•	12.20
•	•								9.80
		•							11.25
			•						12.13
				•					12.13
					•				11.77
						•			12.20
							•		11.77
								•	12.20

#### Legend:

Gear ratio

Speed of transport

M<sub>N</sub> Nominal torque

M Peak torque

**HEX1** M12 x 1.5 7/16 in, hexagonal

**H01** 7/16 in, HEX spring loaded

**H02** 7/16 in, HEX spring loaded, O-ring

**H03** 7/16 in, spring loaded, PolyVee

**F01** Female 5/16 in, floating

**F02** Female 5/16 in, floating dual bearing

**F03** Female 5/16 in, floating, PolyVee

D



## ROLLERDRIVE HOBT

#### **Technical data**

	Nominal voltage [V DC]	24
	Voltage range [V DC]	16 to 28
	No load current [A]	0.4
	Continuous current [A]	1.5
	Peak current [A]	4.5
ſ	System efficiency [%]	40
	Maximum permissible ripple from power supply [%]	3
	Noise [dB(A)]	50
ſ	Ambient temperature for operation [°F]	32 to 104
ſ	Ambient temperature for transport and storage [°F]	-4 to 167
Ī	Ambient temperature changes [K/min]	max. 1 °K/min; 3 h; two cycles according to IEC 68-2-14
Ī	Max. ambient humidity [%]	90, not condensing
- 1		

#### Maximum static load

Maximum static load per RollerDrive

RL [in]	Max. static load [lbs]
12 to 30	450
31 to 39	250
40 to 59	110

#### **Motor plug**

Motor cable with open leads



Pin	Color	Lead
1	Red	24 V DC
2	Black	Ground

- Mechanical performace 13 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- Mechanical commutated
- 7 gear ratios

- 5,000 hours minimal life time
- Protection rate IP54
- Noise 50 dB(A), mounted in a conveyor frame
- Motor cable with open leads



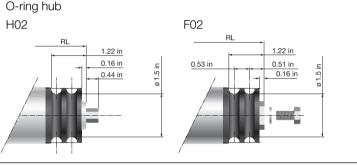
**RollerDrives** 

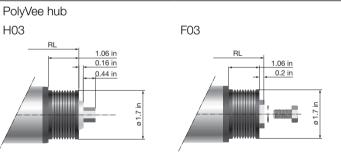
for easy and low noise applications

**HOBT** 

**Shaft** executions

**Motor shaft Idler shaft** 7/16 in hex, spring-loaded Female threaded 5/16 in, floating straight HEX1 H01 F01 0.2 in 0.61 in 0.53 in O-ring hub





For curve applications there are tapered RollerDrives and Rollers. For further information see "Technical specifications", page 66.

**Curves** 



Charac	teristics			Tube ma	terial	Shaft ma	terial	Tube sle	eving	Motor cable	
i	V	M <sub>N</sub>	M <sub>A</sub>	Steel		Steel		PVC	PU	Length	
	[fpm]	[in-lbf]	[in-lbf]	Zinc plated	Stainless	Zinc plated	Stainless	0.08 in	1/8 in	30 in	
12	260	3.3	8.9 - 12.0	•	•	•	•	•	•	•	
16	202	4.2	13.3 - 16.0	•	•	•	•	•	•	•	
24	135	6.6	19.5 - 25.0	•	•	•	•	•	•	•	
36	88	10.4	26.6 - 34.0	•	•	•	•	•	•	•	
48	68	11.0	35.4 - 44.0	•	•	•	•	•	•	•	

- Mechanical performance 18 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 7 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Motor cable with 8 pole Tyco connector



**RollerDrives** 

for standard duty applications

**EC100** 

Motor shaft			0	1.05/1.70	O-ring h		D 111		Lengt
HEX1	Straight			Groove 1.25/1.76			PolyVee		Min. RL
	F01	H01	F01	H01	F02	H02	F03	H03	[in]
•	•								9.61
		•							11.06
			•						11.93
				•					11.93
					•				11.58
						•			12.01
							•		11.58
								•	12.01
•	•								9.61
		•							11.06
			•						11.93
				•					11.93
					•				11.58
						•			12.01
							•		11.58
								•	12.01
•	•								9.61
		•							11.06
-			•						11.93
				•					11.93
					•				11.58
						•			12.01
							•		11.58
								•	12.01
•	•							•	10.05
·	•	•							
		•							11.50
			•						12.37
				•					12.37
					•				120.02
						•			12.45
							•		12.02
								•	12.45
•	•								10.05
		•							11.50
			•						12.37
				•					12.37
					•				12.02
						•			12.45
							•		12.02
								•	12.45

#### Legend:

Gear ratio

Speed of transport

 $M_N$ Nominal torque

MA Peak torque

**HEX1** M12 x 1.5 7/16 in, hexagonal

**H01** 7/16 in, HEX spring loaded

**H02** 7/16 in, HEX spring loaded, O-ring

**H03** 7/16 in, spring loaded, PolyVee

F01 Female 5/16 in, floating

F02 Female 5/16 in, floating dual bearing

F03 Female 5/16 in, floating, PolyVee



Charact	eristics			Tube ma	Tube material Shaft mater		terial	erial Tube sleeving		Motor cable	
i	V	M <sub>N</sub>	M <sub>A</sub>	Steel		Steel		PVC	PU	Length	
	[fpm]	[in-lbf]	[in-lbf]	Zinc plated	Stainless	Zinc plated	Stainless	0.08 in	1/8 in	30 in	
64	50	16.1	46.0 - 54.0	•	•	•	•	•	•	•	
96	34	26.6	86.7 - 100.0	•	•	•	•	•	•	•	

- Mechanical performance 18 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 7 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Motor cable with 8 pole Tyco connector



#### **RollerDrives**

for standard duty applications

**EC100** 

Motor shaft	Idler sha	aft							Length
HEX1	Straight		Groove 1	Groove 1.25/1.76		O-ring hub		PolyVee hub	
	F01	H01	F01	H01	F02	H02	F03	H03	[in]
•	•								10.05
		•							11.50
			•						12.37
				•					12.37
					•				12.02
						•			12.45
							•		12.02
								•	12.45
•	•								10.05
		•							11.50
			•						12.37
				•					12.37
					•				12.02
						•			12.45
							•		12.02
								•	12.45

#### Legend:

Gear ratio

Speed of transport

 $M_N$ Nominal torque

Peak torque

**HEX1** M12 x 1.5 7/16 in, hexagonal

**H01** 7/16 in, HEX spring loaded

**H02** 7/16 in, HEX spring loaded, O-ring

**H03** 7/16 in, spring loaded PolyVee

F01 Female 5/16 in, floating

F02 Female 5/16 in, floating dual bearing

F03 Female 5/16 in, floating PolyVee

D



#### **Technical data**

	Nominal voltage [V DC]	24
	Voltage range [V DC]	22 to 28
	No load current [A]	0.6
	Continuous current [A]	1.8
	Peak current [A]	4.1
ſ	System efficiency [%]	42
ſ	Maximum permissible ripple from power supply [%]	5
	Noise [dB(A)]	55
ſ	Ambient temperature for operation [°F]	32 to 104
ſ	Ambient temperature for transport and storage [°F]	-4 to 167
	Ambient temperature changes [K/min]	max. 1 °K/min; 3 h; two cycles according to IEC 68-2-14
Ī	Max. ambient humidity [%]	90, not condensing
- 1		

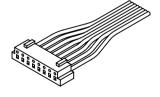
#### Maximum static load

Maximum static load per RollerDrive

RL [in]	Max. static load [lbs]
12 to 30	450
31 to 39	250
40 to 59	110

#### **Motor plug**

The motor plug is manufactured by AMP, consisting of a plug (AMP-part # 175778-8) and terminal pins (AMP-part # 1-175102-1). In case of ripped out cables the plug can be repaired using a crimping tool available directly from AMP (part # 9184381).



Color	Lead	Description
Black	Phase C	Motor leads with AWG 22
White	Phase B	_
Red	Phase A	_
Yellow	S3 (C)	Hall effects sensor leads
Orange	S2 (B)	with AWG 26
Brown	S1 (A)	_
Blue	4.5 to 20.0 V DC	_
Green	Ground	-

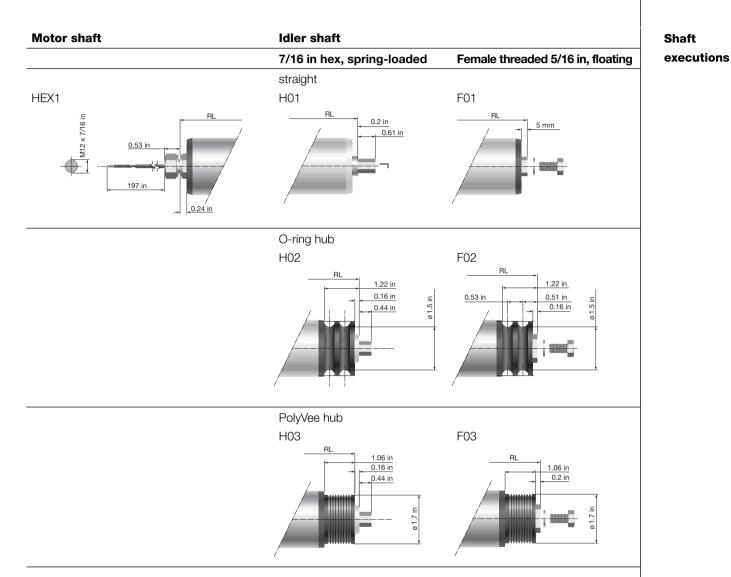
- Mechanical performance 18 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 7 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Motor cable with 8 pole Tyco connector



**RollerDrives** for standard duty applications

**EC100** 



For curve applications there are tapered RollerDrives and Rollers. For further information see "Technical specifications", page 66.

**Curves** 



Characteristics				Tube ma	terial	Shaft ma	terial	Tube sleeving		Motor cable	
i	V	M <sub>N</sub>	M <sub>A</sub>	Steel	1	Steel		PVC	PU	Length	ĺ
	[fpm]	[in-lbf]	[in-lbf]		Stainless	Zinc plated		0.08 in	1/8 in	25.4 in	
12	192.7	6.2	10.6	•	•	•	•	•	•	•	
16	144.5	8.0	15.9	•	•	•	•	•	٠	•	
36	64.2	15.0	31.9	•	•	•	•	٠	•	•	
48	48.2	20.4	47.8	•	•	•	•	•	•	•	
64	36.1	31.9	70.8	•	•	•	•	•	٠	•	

- Mechanical performance
- Roller diameter 1.9 in
- Max. length RL 59 in
- Internal commutation electronics
- 5 gear ratios
- 15,000 hours minimal life time

- Protection rate IP54
- Noise 55 dB(A), mounted in a conveyor frame
- Constant speed of transport
- After run reducing motor stop function
- Motor cable with 5 pole Fixcon plug



**RollerDrives** 

for standard duty applications

**EC200** 

Motor shaf	t   Idler sh	haft							Length
HEX2	Straight	Straight		Groove 1.25/1.76		O-ring hub		PolyVee hub	
	F01	H01	F01	H01	F02	H02	F03	H03	[in]
•	•								10.47
	·	•							12.17
			•						12.80
				•					12.80
					•				11.46
						•			11.89
							•		11.46
								•	11.89
•	•								10.47
		•							12.17
			•						12.80
				•					12.80
					•				11.46
						•			11.89
							•		11.46
								•	11.89
•	•								10.08
		•							11.77
			•						12.40
				•					12.40
					•				11.06
						•			11.50
							•		11.06
								•	11.50
•	•								10.08
		•							11.77
			•						12.40
				•					12.40
					•				11.06
						•			11.50
							•		11.06
								•	11.50
•	•								10.08
		•							11.77
			•						12.40
				•					12.40
					•				11.06
						•			11.50
							•		11.06
								•	11.50

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Gear ratio

Speed of transport

Nominal torque

Peak torque M

**HEX2** M12 x 1 7/16 in, hexagonal

**H01** 7/16 in, HEX spring loaded

**H02** 7/16 in, HEX spring loaded, O-ring

**H03** 7/16 in, spring loaded PolyVee

**F01** Female 5/16 in, floating

**F02** Female 5/16 in, floating dual bearing

F03 Female 5/16 in, floating, PolyVee

D



#### **Technical data**

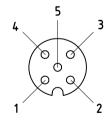
	Nominal voltage [V DC]	24
	Voltage range [V DC]	18 to 28
	No load current [A]	0.4
	Continuous current [A]	2.1
	Peak current [A]	5.5
	System efficiency [%]	49
	Maximum permissible ripple from power supply [%]	3
	Noise [dB(A)]	55
	Ambient temperature for operation [°F]	32 to 104
	Ambient temperature for transport and storage [°F]	-4 to 167
	Ambient temperature changes [K/min]	max. 1 °K/min; 3 h; two cycles according to IEC 68-2-14
	Max. ambient humidity [%]	90, not condensing
- 1		

#### Maximum static load

Maximum static load per RollerDrive

RL [in]	Max. static load [lbs]
12 to 30	450
31 to 39	250
40 to 59	110

#### **Motor plug**



Pin	Color	Function	Value
1	brown	Power input from power supply (+)	Nominal: 24 V DC Range: 18 to 28 V DC
2	white	Rotation direction, seen from cable end of the RollerDrive	Low U < 0.8 V = ccw High U > 2.4 V = cw
3	blue	Ground for power and signal (-)	Ground
4	black	Failure output	Low = no failure High = failure
5	gray	Speed/start signal analog	Range: 0 to 24 V DC Stop (brake): 0 to 2 V DC Speed: 2.4 to 5 V DC (Incline ratio: 1 V ~ 114.6 revs/ min / gear ratio) Max. speed: 5 to 24 V DC

#### **Accessories**

Part	Characteristics	Article number
Extension cable	Length 63 in	89VK
RollerDrive - DriveControl		

30

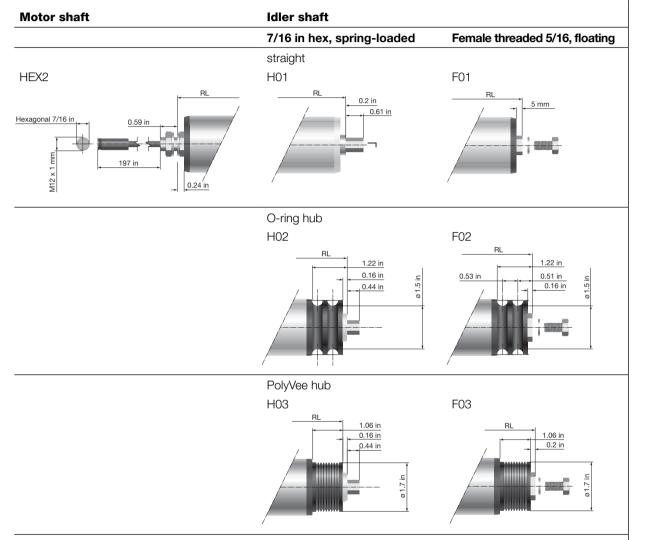
- Mechanical performance 25 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- Internal commutation electronics
- 5 gear ratios
- 15,000 hours minimal life time

- Protection rate IP54
- Noise 55 dB(A), mounted in a conveyor frame
- Constant speed of transport
- After run reducing motor stop function
- Motor cable with 5 pole Fixcon plug



**RollerDrives** for standard duty applications **EC200** 

**Shaft** executions



For curve applications there are tapered RollerDrives and Rollers. For further information see "Technical specifications", page 66.

**Curves** 



Charact	Characteristics				Tube material Shaft ma		terial Tube sleeving			Motor cable		
i	V	M <sub>N</sub> M <sub>A</sub>		Steel		Steel		PVC	PU	Length		
	[fpm]	[in-lbf]	[in-lbf]	Zinc plated	Stainless	Zinc plated	Stainless	0.08 in	1/8 in	39.37 in		
4	475	3.0	11.0	•	•	•	•	•	•	•		
9	211	6.6	23.0	•	•	•	•	•	•	•		
12	158	8.8	31.0	•	•	•	•	•	•	•		
16	119	13.0	37.0	•	•	•	•	•	•	•		
24	79	19.5	51.0	٠	•	٠	•	•	•	•		

- Mechanical performance 31 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 8 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Motor cable with 8 pole Tyco connector



**RollerDrives** for heavy duty applications

EC110

Motor shaft		Idler shaft								
HEX1 HEX0		Straight		Groove 1.25/1.76		O-ring hub		PolyVee hub		Min. RL
		F01	H01	F01	H01	F02	H02	F03	H03	[in]
•	•	•								9.82
			•							11.27
				•						12.14
					•					12.14
						•				11.79
							•			12.22
								•		11.79
									•	12.22
•	•	•								10.27
			•							11.27
				•						12.59
					•					12.59
						•				12.24
							•			12.67
								•		12.24
									•	12.67
•	•	•								10.12
			•							11.57
				•						12.44
					•					12.44
						•				12.08
							•			12.51
								•		12.08
									•	12.51
•	•	•								10.12
			•							11.57
				•						12.44
					•					12.44
						•				12.08
							•			12.51
								•		12.08
									•	12.51
•	•	•								10.12
			•							11.57
				•						12.44
					•					12.44
						•				12.08
							•			12.51
								•		12.08
									•	12.51

#### Legend:

i

Gear ratio

Speed of transport

 $M_{N}$ Nominal torque

M Peak torque

**HEX0** 7/16 in, solid hexagonal

**HEX1** M12 x 1.5 7/16 in, hexagonal

**H01** 7/16 in, HEX spring loaded

**H02** 7/16 in, HEX spring loaded, O-ring

**H03** 7/16 in, spring loaded, PolyVee

**F01** Female 5/16 in, floating

F02 Female 5/16 in, floating dual bearing

F03 Female 5/16 in, floating, PolyVee



Charact	eristics			Tube material		Shaft material		Tube sleeving		Motor cable	
i	V	M <sub>N</sub>	M <sub>A</sub> [in-lbf]	Steel Zinc plated	Stainless	Steel Zinc plated	Stainless	PVC 0.08 in	PU 1/8 in	Length 39.37 in	
36	[fpm] 53	[in-lbf] 26.5	81.0	Platted	•	Platted	•	•	•	• •	
48	40	30.0	102.0	•	•	•	•	•	•	•	
64	30	37.6	117.0	•	•	•	•	•	•	•	

- Mechanical performance 31 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 8 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Motor cable with 8 pole Tyco connector



**RollerDrives** 

for heavy duty applications

EC110

	Motor sh	naft	Idler shaft								Length			
HEX1		HEX0	Straight		Groove 1.25/1.76		O-ring hub		PolyVee hub		Min. RL	Legend:		
			F01	H01	F01	H01	F02	H02	F03	H03	[in]	i	Gear ratio	
	•	•	•								10.57	v	Speed of	
				•							12.02		transport	
					•						12.89	$M_N$	Nominal torque	
						•					12.89	$\mathbf{M}_{\mathtt{A}}$	Peak torque	
							•				12.54	HEX	7/16 in, solid	
								•			12.96		hexagonal	
									•		12.54	HEX1	M12 x 1.5	
										•	12.96		7/16 in, hexagonal	
	•	•	•								10.57	H01	7/16 in, HEX	
				•							12.02		spring loaded	
					•						12.89	H02	7/16 in, HEX	
						•					12.89		spring loaded, O-ring	
							•				12.54	шоо	, and the second	
								•			12.96	HU3	7/16 in, spring loaded, PolyVee	
									•		12.54	F01	Female 5/16 in,	
										•	12.96		floating	
	•	•	•								10.57	F02	Female 5/16 in,	
				•							12.02		floating dual bearing	
					•						12.89	F03	Female 5/16 in,	
						•					12.89	F03	floating, PolyVee	
							•				12.54			
								•			12.96			
									•		12.54			

D



# ROLLERDRIVE EC110

#### **Technical data**

-		
	Nominal voltage [V DC]	24
	Voltage range [V DC]	22 to 28
	No load current [A]	0.6
	Continuous current [A]	2.5
	Peak current [A]	4.1
	System efficiency [%]	52
	Maximum permissible ripple from power supply [%]	5
	Noise [dB(A)]	55
	Ambient temperature for operation [°F]	32 to 104
	Ambient temperature for transport and storage [°F]	-4 to 167
	Ambient temperature changes [K/min]	max. 1 °K/min; 3 h; two cycles according to IEC 68-2-14
	Max. ambient humidity [%]	90, not condensing
ı		

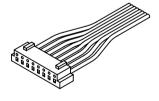
## Maximum static load

Maximum static load per RollerDrive

RL [in]	Max. static load [lbs]
12 to 30	450
31 to 39	250
40 to 59	110

### **Motor plug**

The motor plug is manufactured by AMP, consisting of a plug (AMP-part # 175778-8) and terminal pins (AMP-part # 1-175102-1). In case of ripped out cables the plug can be repaired using a crimping tool available directly from AMP (part # 9184381).



Color	Lead	Description
Black	Phase C	Motor leads with AWG 22
White	Phase B	
Red	Phase A	_
Yellow	S3 (C)	Hall effects sensor leads with
Orange	S2 (B)	AWG 22
Brown	S1 (A)	_
Blue	4.5 to 20.0 V DC	_
Green	Ground	

### **Accessories**

Part	Characteristics	Article number
Anti-spin bracket flat up	Bottom and top of hex are flat	N582 - see p. 68
Anti-spin bracket point up	Bottom and top of hex are pointed	N583 - see p. 68

- Mechanical performance 31 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 8 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

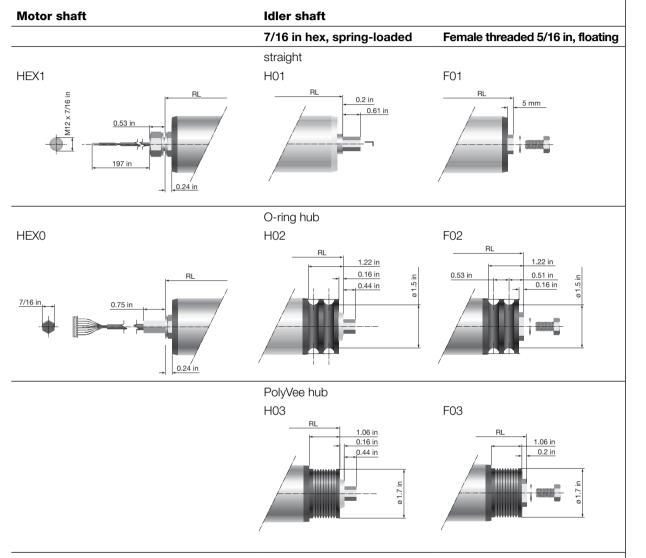
- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Motor cable with 8 pole Tyco connector

Article number: see fold-out page



**RollerDrives** for heavy duty applications EC110

## **Shaft** executions



For curve applications there are tapered RollerDrives and Rollers. For further information see "Technical specifications", page 66.

**Curves** 



# ROLLERDRIVE EC100 B

Charact	eristics			Tube ma	terial	Shaft ma	terial	Tube sle	eving	Motor cable
i	V	M <sub>N</sub>	M <sub>A</sub>	Steel		Steel		PVC	PU	Length
	[fpm]	[in-lbf]	[in-lbf]	Zinc plated	Stainless	Zinc plated	Stainless	0.08 in	1/8 in	30 in
12	260	3.3	8.9 - 12.0	•	•	•	•	•	•	•
16	202	4.2	13.3 - 16.0	•	•	•	•	•	•	•
24	135	6.6	19.5 - 25.0	•	•	•	•	•	•	•
36	88	10.4	26.6 - 34.0	•	•	•	•	•	•	•
48	68	11.0	35.4 - 44.0	•	•	•	•	•	•	•

- Mechanical performance 18 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 7 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Mechanical failsafe brake
- Motor cable with 8 pole Tyco connector

Article number: see fold-out page



**RollerDrives** 

for decline applications

**EC100 B** 

Motor shaft	Idler sha	aft							Lengt
HEX1	Straight		Groove 1.	.25/1.76	O-ring hu	ıb	PolyVee	hub	Min. RL
	F01	H01	F01	H01	F02	H02	F03	H03	[in]
•	•								9.61
		•							11.06
			•						11.93
				•					11.93
					•				11.58
						•			12.01
							•		11.58
								•	12.01
•	•								9.61
		•							11.06
			•						11.93
				•					11.93
					•				11.58
						•			12.01
							•		11.58
								•	12.01
•	•								9.61
	-	•							11.06
			•						11.93
	-			•					11.93
					•				11.58
						•			12.01
							•		11.58
								•	12.01
•	•								10.05
		•							11.50
			•						12.37
				•					12.37
					•				12.02
						•			12.45
							•		12.02
								•	12.45
•	•								10.05
		•							11.50
			•						12.37
				•					12.37
					•				12.02
						•			12.45
							•		12.02
								•	12.45

# Legend:

i

Gear ratio

Speed of transport

 $M_N$ Nominal torque

M Peak torque

**HEX1** M12 x 1.5 7/16 in, hexagonal

**H01** 7/16 in, HEX spring loaded

**H02** 7/16 in, HEX spring loaded, O-ring

**H03** 7/16 in, spring loaded PolyVee

F01 Female 5/16 in, floating

F02 Female 5/16 in, floating dual bearing

F03 Female 5/16 in, floating, PolyVee



# ROLLERDRIVE EC100 B

Charact	haracteristics			Tube material		Shaft material		Tube sleeving		Motor cable	
i	V	M <sub>N</sub>	M <sub>A</sub>	Steel		Steel		PVC	PU	Length	
	[fpm]	[in-lbf]	[in-lbf]	Zinc plated	Stainless	Zinc plated	Stainless	0.08 in	1/8 in	30 in	
64	50	16.1	46.0 - 54.0	•	•	•	•	•	•	•	
96	34	26.6	86.7 - 100.0	•	•	•	•	•	•	•	

R

O,

- Mechanical performance 18 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 7 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Mechanical failsafe brake
- Motor cable with 8 pole Tyco connector

### Article number: see fold-out page



**RollerDrives** 

for decline applications

**EC100 B** 

	Motor shaft	Idler sh	aft							Length
HEX1		Straight		Groove 1.25/1.76		O-ring hub		PolyVee hub		Min. RL
		F01	H01	F01	H01	F02	H02	F03	H03	[in]
	•	•								10.05
			•							11.50
				•						12.37
					•					12.37
						•				12.02
							•			12.45
								•		12.02
									•	12.45
	•	•								10.05
			•							11.50
				•						12.37
					•					12.37
						•				12.02
							•			12.45
								•		12.02
									•	12.45

Legend	!
--------	---

Gear ratio

Speed of transport

 $M_N$ Nominal torque

 $\mathbf{M}_{\mathbf{A}}$ Peak torque

**HEX1** M12 x 1.5 7/16 in, hexagonal

**H01** 7/16 in, HEX spring loaded

**H02** 7/16 in HEX spring loaded, O-ring

**H03** 7/16 in, spring loaded PolyVee

F01 Female 5/16 in, floating

F02 Female 5/16 in, floating dual bearing

F03 Female 5/16 in, floating, PolyVee



# ROLLERDRIVE EC100 B

#### **Technical data**

	Nominal voltage [V DC]	24
	Voltage range [V DC]	22 to 28
	No load current [A]	0.6
	Continuous current [A]	1.8
	Peak current [A]	4.1
ſ	System efficiency [%]	52
ſ	Maximum permissible ripple from power supply [%]	5
	Noise [dB(A)]	55
Ī	Ambient temperature for operation [°F]	32 to 104
ſ	Ambient temperature for transport and storage [°F]	-4 to 167
	Ambient temperature changes [K/min]	max. 1 °K/min; 3 h; two cycles according to IEC 68-2-14
Ī	Max. ambient humidity [%]	90, not condensing
- 1		

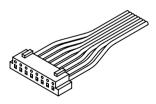
## Maximum static load

Maximum static load per RollerDrive

RL [in]	Max. static load [lbs]
12 to 30	450
31 to 39	250
40 to 59	110

### **Motor plug**

The motor plug is manufactured by AMP, consisting of a plug (AMP-part # 175778-8) and terminal pins (AMP-part # 1-175102-1). In case of ripped out cables the plug can be repaired using a crimping tool available directly from AMP (part # 9184381).



Color	Lead	Description
Black	Phase C	Motor leads with AWG 22)
White	Phase B	
Red	Phase A	
Yellow	S3 (C)	Hall effects sensor leads with
Orange	S2 (B)	AWG 26
Brown	S1 (A)	
Blue	4.5 to 20.0 V DC	_
Green	Ground	

R

O,

- Mechanical performance 18 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 7 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Mechanical failsafe brake
- Motor cable with 8 pole Tyco connector

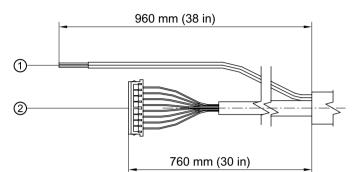
### Article number: see fold-out page

**RollerDrives** 

for decline applications

**EC100 B** 

Failsafe brake



1	Brake leads
2	Motor plug

Recommended break leads connection:

- Green lead with red stripes: 24 V DC
- Green lead with blue stripes: GND

The fail save brake is not sensitive to electrical polarity, so it's connection is bi polar; for to avoid confusion it is recommended to connect them as stated above.

The failsafe brake is designed to hold the RollerDrive in position if there is a power shut down, mainly at declines.

24
0 to 28
max. 6.0
min. 12.2
0.17
144
AWG 22

Gear ratio	Static holding torque [in-lbs]
24:1	74.3
36:1	111.5
48:1	148.7
64:1	198.2
96:1	297.4



# ROLLERDRIVE EC100 B

## **Shaft** executions

# **Motor shaft Idler shaft** 7/16 in hex, spring-loaded Female threaded 5/16 in, floating straight HEX1 H01 F01 0.61 in 0.53 in O-ring hub H02 F02 1.22 in 1.22 in 0.16 in 0.51 in 0.44 in PolyVee hub F03 H03 1.06 in 0.16 in 0.44 in

### **Curves**

For curve applications there are tapered RollerDrives and Rollers. For further information see "Technical specifications", page 66.

- Mechanical performance 18 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 7 gear ratios
- 15,000 hours minimal life time
- Protection rate IP54

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Mechanical failsafe brake
- Motor cable with 8 pole Tyco connector

Article number: see fold-out page



**RollerDrives** 

for decline applications

EC100 B



# ROLLERDRIVE EC110 1P66

Charact	Characteristics			Tube material		Shaft material		Tube sleeving		Motor cable	
i	V	M <sub>N</sub>	M <sub>A</sub>	Steel		Steel		PVC	PU	Length	
	[fpm]	[in-lbf]	[in-lbf]	Zinc plated	Stainless	Zinc plated	Stainless	0.08 in	1/8 in	39.37 in	
4	475	3.0	11.0	•	•	•	•	•	•	•	
9	211	6.6	23.0	•	•	•	•	•	•	•	
12	158	8.8	31.0	•	•	•	•	•	•	•	
16	119	13.0	37.0	•	•	•	•	•	•	•	
24	79	19.5	51.0	•	•	•	•	•	•	•	
36	53	26.5	81.0	•	•	•	•	•	•	•	
48	40	30.0	102.0	•	•	•	•	•	•	•	
64	30	37.6	117.0	•	•	•	•	•	•	•	

- Mechanical performance 31 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 8 gear ratios
- 15,000 hours minimal life time
- Protection rate IP66

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Motor cable with 8 pole Tyco connector

Article number: see fold-out page



**RollerDrives** for moisture applications

**EC110 IP66** 

Motor shaft		Idler shaft		Length
HEX1	HEX0	Straight	Groove 1.25/1.76	Min. RL
		F01	F01	[in]
•	•	•		9.82
			•	12.14
•	•	•		10.27
			•	12.59
•	•	•		10.12
			•	12.44
•	•	•		10.12
			•	12.44
•	•	•		10.12
			•	12.44
•	•	•		10.57
			•	12.89
•	•	•		10.57
			•	12.89
•	•	•		10.57
			•	12.89

#### Legend:

Gear ratio

Speed of transport

M<sub>N</sub> Nominal torque

M Peak torque

HEX0 7/16 in solid hexagonal

**HEX1** M12 x 1.5 7/16 in, hexagonal

**F01** Female 5/16 in, floating

D



# ROLLERDRIVE EC110 1P66

#### **Technical data**

	Nominal voltage [V DC]	24
	Voltage range [V DC]	22 to 28
	No load current [A]	0.6
	Continuous current [A]	2.5
	Peak current [A]	4.1
	System efficiency [%]	52
	Maximum permissible ripple from power supply [%]	5
	Noise [dB(A)]	55
	Ambient temperature for operation [°F]	32 to 104
	Ambient temperature for transport and storage [°F]	-4 to 167
	Ambient temperature changes [K/min]	max. 1 °K/min; 3 h; two cycles according to IEC 68-2-14
	Max. ambient humidity [%]	90, not condensing
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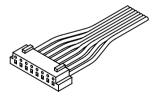
## Maximum static load

Maximum static load per RollerDrive

RL [in]	Max. static load [lbs]
12 to 30	450
31 to 39	250
40 to 59	110

### **Motor plug**

The motor plug is manufactured by AMP, consisting of a plug (AMP-part # 175778-8) and terminal pins (AMP-part # 1-175102-1). If the cables are rippled out the plug can be repaired using a crimping tool available directly from AMP (part # 9184381).



Color	Lead	Description
Black	Phase C	Motor leads with AWG 22
White	Phase B	_
Red	Phase A	_
Yellow	S3 (C)	Hall effects sensor leads with
Orange	S2 (B)	AWG 22
Brown	S1 (A)	_
Blue	4.5 to 20.0 V DC	_
Green	Ground	

- Mechanical performance 31 W
- Roller diameter 1.9 in
- Max. length RL 59 in
- External commutation electronics
- 8 gear ratios
- 15,000 hours minimal life time
- Protection rate IP66

- Noise 55 dB(A), mounted in a conveyor frame
- After run reducing motor stop function
- Electronic brake for holding the motor (Zero Motion Hold)
- Motor cable with 8 pole Tyco connector

Article number: see fold-out page



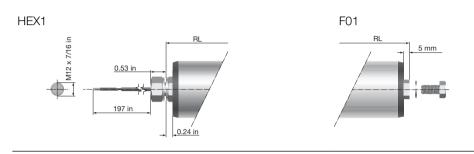
**RollerDrives** for moisture applications

**EC110 IP66** 

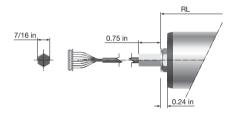
#### **Motor shaft**

### Female threaded 5/16, floating

# Shaft executions



HEX0



For curve applications there are tapered RollerDrives and Rollers. For further information see "Technical specifications", page 66.

**Curves** 

D

# CONTROLS OVERVIEW

			DriveControl	
			to control a RollerDrive	
			DC-EC100	DC-EC200
Technical			DO 20100	DO 20200
characteristics				
	Number of connecta	able RollerDrives	1	1
	Protection rate		IP20	IP20
	Sensor interface			
	Number of interfa	aces	1	-
	Sensor IN		•	
	PNP/NPN switch	1	•	
	PLC interface			
	Number of interfa	aces	-	1
	Speed settings			
	Setting on the co	ontrol	•	•
	External analog	signal	•	•
	External potention	meter	•	
	Temperature monito	ring		
	Of control		•	•
	Of motors		•	•
	Current limiting			
	Brake function			
	Smart braking			
	Dynamic braking		•	•
	Zero motion hold	I	•	•
	Communication			
	Peer to Peer			
	Number of slave	s per zone	-	-
	Software functions	·		
	ZPA			
	Dellocating			
	ZPA-function dis	able		
RollerDrives				
	EC100	see p. 22	•	
	EC100 B	see p. 38	•	
	EC110	see p. 32		
	EC110 IP66	see p. 46		
	EC200	see p. 28		•
			from page 52	from page 54





**Controls Overview** 

ZoneControl
to control a Zone and a RollerDrive

HC-EC100	HC-EC110
1	1
IP20	IP20
2	2
•	•
-	-
•	•
•	•
•	•
•	•
•	•
•	•
•	•
•	•
•	•
•	•
2	2
•	•
•	•
•	•
•	
•	
	•
	•
from page 56	from page 58



# **Technical data**

-		
	Nominal voltage [V DC]	24
	Voltage range [V DC]	18 to 28
	Maximum permissible ripple from power supply [%]	< 5, < 1 recommended
	Continuous current [A]	1.8
	Fuse [A]	5; slow blow
	Protection rate	IP20
	Ambient temperature for operation [°F]	32 to 104
Ambient temperature for transport and storage [°F]		-4 to 167
	Ambient temperature changes [K/min]	1; 3 h; two cycles according to IEC 68-2-14
	Max. ambient humidity [%]	90, not condensing

#### **Functions**

- Commutation electronics for RollerDrive EC100
- Sensor connection
- Sensor power supply
- Speed control via DriveControl, analog signal or external potentiometer
- Choice of direction of travel via DriveControl or external signal
- LEDs provide motor and sensor diagnostics as well as power, fuse, and temperature status
- Temperature control of DriveControl and motor
- Current limiting due to high temperature of DriveControl or motor
- Choice of logic conversion NPN PNP
- Zero motion hold: When the DriveControl has no start signal, the RollerDrive will be held in place.
- Dynamic braking: RollerDrive acts like a generator and DriveControl feeds back current into the RollerDrive windings

Note: These functions are explained in more detail in the user manual.

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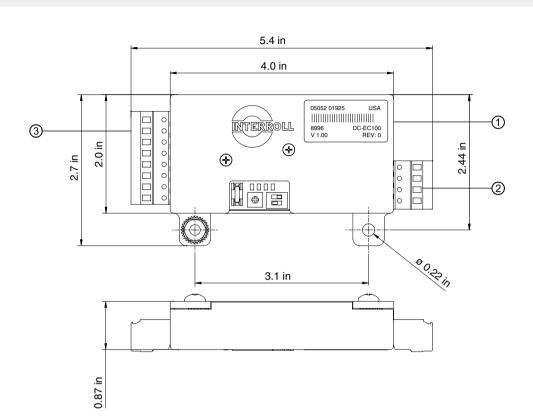


to control a **RollerDrive** 

DC-EC100

# Installation dimensions





Article number: 8916A

1	RollerDrive connection		
2	Sensor connection	Pin	
		_1	Sensor +24 V DC output
	/  🖺	2	Sensor common ground output
	/ 📕	3	Sensor fault input
		4	Sensor input
3	Inputs and outputs	Pin	
	( <del>x</del> )	1	+24 V DC input
	8	2	Common ground input
		3	Sensor output
		4	No fault output
		5	REV input
		6	FWD input
		7	External pot+
	<del></del> /	8	Speed analog input

# Inputs and outputs



D



#### **Technical data**

-		
	Nominal voltage [V DC]	24
	Voltage range [V DC]	18 to 30
	Maximum permissible ripple from power supply [%]	< 5, < 1 recommended
	Continuous current [A]	4
	Fuse [A]	4; slow blow
	Protection rate	IP20
	Ambient temperature for operation [°F]	32 to 104
	Ambient temperature for transport and storage [°F]	-4 to 167
	Ambient temperature changes [K/min]	1; 3 h; two cycles according to IEC 68-2-14
	Max. ambient humidity [%]	90, not condensing

#### **Functions**

- Speed control via DriveControl or external analog signal
- PLC interface (programmable logic controller)
- Choice of direction of travel via DriveControl or external signal
- LEDs provide power status and error diagnostics
- Choice of logic conversion NPN PNP

Note: These functions are explained in more detail in the user manual.

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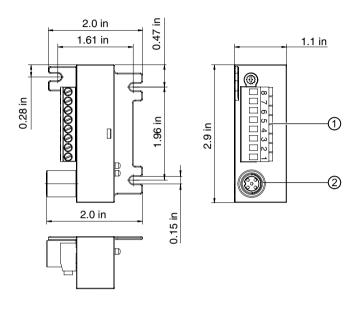
### **Controls**

to control a **RollerDrive** 

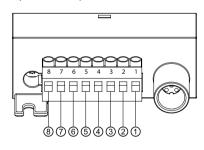
DC-EC200

# Installation dimensions

## Article number: 9008



1 Input and output



Pin	
1	Sensor +24 V DC output
2	Power GND
3	Start IN1
4	Start IN2
5	Direction IN1
6	Direction IN2
7	Fault OUT1
8	Fault OUT2

2 RollerDrive connection

Inputs	and
output	S

Part	Characteristics	Article number	Access
Extension cable	Length 63 in	89VK	]
RollerDrive - DriveContr	ol		

ssories

0



# ZONECONTROL HC-EC100

#### **Technical data**

Nominal voltage [V DC]	24
Voltage range [V DC]	22 to 28
Maximum permissible ripple from power supply [%]	< 5, < 1 recommended
Continuous current [A]	1.8
Fuse [A]	5; slow blow
Protection rate	IP20
Ambient temperature for operation [°F]	32 to 104
Ambient temperature for transport and storage [°F]	-4 to 167
Ambient temperature changes [K/min]	1; 3 h; two cycles according to IEC 68-2-14
Max. ambient humidity [%]	90, not condensing
Max. ambient humidity [%]	90, not condensing

#### **Functions**

- Commutation electronics for RollerDrive EC100
- Zone control for zero pressure conveyors
- Zone-to-zone communication
- Jam protection by zone communication
- · Reverse or jog entire system: Switch settings and connections on the board allow user to reverse the zone-tozone logic, jog the entire system, or reverse or jog parts of the system, or bypass those functions altogether (default) without using external cards.
- Multiple dependent RollerDrives in one zone: Up to three RollerDrives can be made to run from one HC-Drive-Control (and two dependent cards) to obtain multiple RollerDrives in a single zone.
- LEDs provide motor, sensor and jam diagnostics as well as power, fuse, and temperature status
- Choice of direction of travel via DriveControl or external signal
- Direct start sensor connection, no interface board necessary
- Easy external signal embedding due to defined digital I/O points
- Choice of NPN/PNP logic conversion
- Temperature control of DriveControl and motor
- Current restricted due to high DriveControl or motor temperature
- Zero motion hold: When the DriveControl has no start signal, the RollerDrive will be held in place.
- Dynamic braking: RollerDrive acts like a generator and DriveControl feeds current back into the RollerDrive windings
- Smart braking: Depending on upstream and downstream zone occupancy, the RollerDrive will brake if needed, and coast if no braking is required
- Advanced braking: The combination of dynamic braking followed by zero motion hold

Note: These functions are explained in more detail in the user manual.

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#### **Controls**

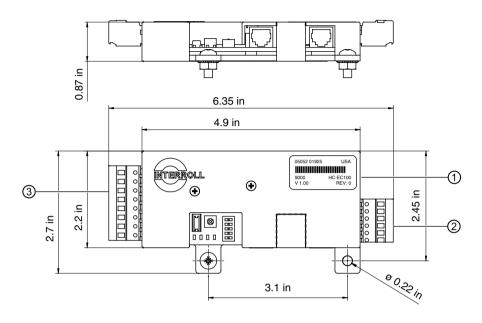
to control a Zone and a RollerDrive

HC-EC100

# Installation dimensions

Inputs and outputs

Article number: 9000/9001



1	RollerDrive connection		
2	Sensor connection	Pin	
	<u> </u>	1	Sensor +24 V DC output
		2	Sensor common ground output
		3	Sensor fault input
		4	Sensor 1 input
		5	Sensor 2 input
		6	Accum (L-stop) input
3	Inputs and outputs	Pin	
		1	+24 V DC input
	8	2	Common ground input
		3	Smart 1 output
		4	No fault output
		5	REV input
		6	Smart 1 / FWD input
		7	External pot+
		8	Speed analog input

HC-EC100 Full (9001) offers optical isolated handshake in addition to smart I/O. See user manual for details.



D



# ZONECONTROL HC-EC110

#### **Technical data**

Nominal voltage [V DC]	24
Voltage range [V DC]	22 to 28
Maximum permissible ripple from power supply [%]	< 5, < 1 recommended
Continuous current [A]	2.5
Fuse [A]	5; slow blow
Protection rate	IP20
Ambient temperature for operation [°F]	32 to 104
Ambient temperature for transport and storage [°F]	-4 to 167
Ambient temperature changes [K/min]	1; 3 h; two cycles according to IEC 68-2-14
Max. ambient humidity [%]	90, not condensing
,	

#### **Functions**

- Commutation electronics for RollerDrive EC110
- Zone control for zero pressure conveyors
- Zone-to-zone communication
- Jam protection by zone communication
- · Reverse or jog entire system: Switch settings and connections on the board allow user to reverse the zone-tozone logic, jog the entire system, or reverse or jog parts of the system, or bypass those functions altogether (default) without using external cards.
- Multiple dependent RollerDrives in one zone: Up to three RollerDrives can be made to run from one HC-Drive-Control (and two dependent cards) to obtain multiple RollerDrives in a single zone.
- LEDs provide motor, sensor and jam diagnostics as well as power, fuse, and temperature status
- Choice of direction of travel via DriveControl or external signal
- Direct start sensor connection, no interface board necessary
- Easy external signal embedding due to defined digital I/O points
- Choice of NPN/PNP logic conversion
- Temperature control of DriveControl and motor
- Current restricted due to high DriveControl or motor temperature
- Zero motion hold: When the DriveControl has no start signal, the RollerDrive will be held in place.
- Dynamic braking: RollerDrive acts like a generator and DriveControl feeds current back into the RollerDrive windings
- Smart braking: Depending on upstream and downstream zone occupancy, the RollerDrive will brake if needed, and coast if no braking is required
- Advanced braking: The combination of dynamic braking followed by zero motion hold

Note: These functions are explained in more detail in the user manual.



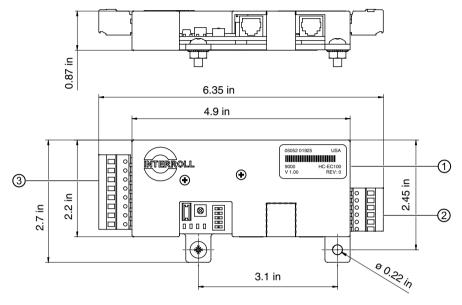
to control a Zone and a RollerDrive

HC-EC110

# Installation dimensions

# **Controls**

Article number: 9004



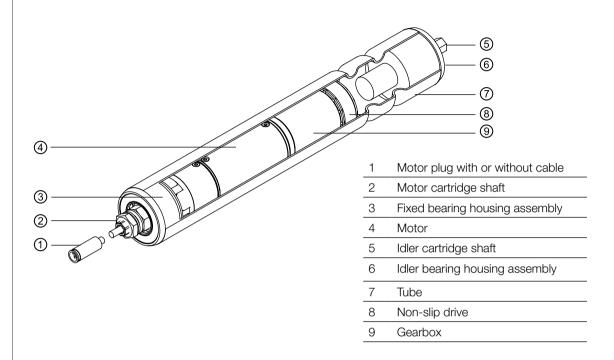
1	RollerDrive connection		
2	Sensor connection	Pin	
	<del>-</del>	1	Sensor +24 V DC output
		2	Sensor common ground output
		3	Sensor fault input
		4	Sensor 1 input
		5	Sensor 2 input
		6	Accum (L-stop) input
	·		
3	Inputs and outputs	Pin	
		1	+24 V DC input
		2	Common ground input
		3	Smart 1 output
		4	No fault output
		5	REV input
	() — [ ] () [ ]	6	Smart 1 / FWD input
		7	External pot+
		8	Speed analog input

Inputs and outputs

0

# TECHNICAL SPECIFICATIONS

#### Components



## Conveying speed

#### Selecting the conveying speed

RollerDrive is following the principle of keeping the motor speed constant and selecting the conveying speed by having different gear box reductions available. Details are described which each of the RollerDrive products.

#### Load capacity

### Load capacity of RollerDrive

Without thru going shaft the RollerDrive is seen as roller without shaft, comparable to a flow storage roller. However there is one specific point to be noticed, the motor end is always fixed with the side frame of the conveyor. The non driven end is with the most popular version, the 5/16 HEX spring loaded shaft, only a loose fit in a hex hole. That fact is compensated by having it equipped with a double bearing configuration. Thus the whole RollerDrive can be seen as roller without shaft but with fixed stub shafts. See static load specification according to load table in each Roller-Drive section.

In an application it is important that in minimum always three rollers including the RollerDrive are located underneath the box. In most of the applications the torque not the load will be the minimum factor to size the unit. For detailed calculations of the maximum load in relation to the roller length, the Roller Calculation Program is ready for download on the Interroll Web Page. Using the program the shaft type must be entered as "Round" and the shaft location as "Stub Axle".



# **Technical**

Rolling resistance and

performance

**Specifications** 

When a box is conveyed on a roller lane, there a the following forces to be overcome:

- Static friction
- Rolling friction

A box is moving with constant speed on a conveyor, following equation is valid:

 $F = m \cdot g \cdot \mu$ 

F Tangential force in Newton

m Mass in kg

Acceleration of gravity 9.81 m/sec g

see table below for factors related to box material

Material	Friction coefficient
Steel	0.03
Polymer, flat	0.04
Polymer, uneven	0.05
Wood	0.05
Carton, hard	0.06
Carton, soft	0.08

#### Example:

Load	30 kg
Box material: Techno Polymer, friction coefficient	μ 0.04
Speed	0.5 m/sec
Necessary tangential force	11.77 N
At a radius of 25 mm the required torque is	0.3 Nm
That leads to a mechanical performance of	5.88 W

The performance which is needed to convey a box at constant speed on a roller conveyor is primary determined by the shape and the material of the bottom surface of the box. Less performance is needed for a flat and hard surface, like a steel box. But steel also has the tendency to slip on the rollers which results in longer acceleration and deceleration times. A rule of thumb is about 3 % of the load is needed as tangential force for hard box material. Using carton boxes on roller conveyors needs more performance. The friction coefficient is about 8 %. The difference to steel boxes is used to deform the bottom surface when running on a roller conveyor. Thus, this energy is not available for transportation. One cycle in a conveyor consists from acceleration to constant conveying to deceleration. Due to that, for performance calculations the acceleration is a critical phase which must be determined carefully. In the acceleration phase static friction has to be overcome and is replaced by the very less rolling friction. That

explains the characteristic currant peak at the beginning of each conveying cycle. Due to the complexity of each application it is recommended to consult an Interroll RollerDrive Expert and the RollerDrive Calculation Program to find out what is the right product for each application.



Table of

friction

coefficient

# TECHNICAL SPECIFICATIONS

### **Torque** transmissions

#### Conveyor without torque transmission

RollerDrive conveyors without torque transmission are seldom used. They are suitable for evenly conveyed heavy

A minimum number of RollerDrives must contact the conveyed item at any time, in order to ensure that the conveyed item is driven forward.

#### Conveyor with torque transmission

If a conveyor is driven by RollerDrives, the torque must be transmitted to the non-driven rollers of the conveyor. There are several ways to achieve this:

#### Friction drive

- · O-ring running in grooves or grooved drive heads
- PolyVee belt running in PolyVee drive heads

When selecting the right torque transmission, it is important to know the size of the conveyed item. If the construction of the RollerDrive zone within the conveyor allows the item's center of gravity to stop exactly on a RollerDrive, the belts are relieved strongly. In the acceleration phase most of the start torque is directly transmitted from the RollerDrive tube to the conveyed item. If there is any possiblity that the conveyed item can come to a stop in front or behind a RollerDrive, it is important to select a torque transmission able to transmit high start up torques properly throughout the entire life of the application.

#### **O-ring**

The O-ring can convey applications up to 0.6 m/s and 40 kg. It is important that the load's center of gravity always stops directly on a RollerDrive.

The RollerDrive drives up to 10 rollers via O-rings.

#### **PolvVee**

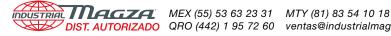
There are several advantages to using PolyVee belts compared to O-rings. Due to a 300 % higher ability to transmit torque, all rollers in a zone are powered very evenly and smoothly. No clamping element is required as the belt is flexible enough to remain mountable and to gap hole tolerances, and, on the other hand, to build up sufficient tension for the torque transmission. That helps to reduce acceleration and decelaration distances.

The PolyVee belt acts in the same way in incline and decline conveyors. The torque is transmitted very evenly to all rollers in order to increase the friction between rollers and conveyed item.

When transmitting the torque with PolyVee on more than 15 rollers, there will be an RPM drop of about one RPM per roller. The reason is a transmission effect caused by shifting the neutral phase of the belt under load.

#### Characteristics of PolyVee belt:

- Flexible type PJ; ISO 9981; DIN 7867
- On a PolyVee head, you can use two belts with up to four ribs including a groove between the belts.
- Available pitch: 60, 73, 75, 94, 100, 105, 120, 133, 160 mm





**Technical Specifications** 

Normally, there are two versions used for PolyVee belts:

### 2-rib PolyVee belt:

Applications with a speed in the range of 0.6 m/s up to 2.0 m/s weighing less than 50 kg. The conveyed item must not come to a stop on the RollerDrive. RollerDrives with 2-rib PolyVee belts can drive up to 20 rollers.

#### 3-rib PolyVee belt:

Heavy conveyed items, using the full performance of RollerDrives. 3-rib PolyVee belts can also be used for long conveyor sections. The calculation program helps to calculate the maximum number of rollers which are driven by RollerDrive and 3-rib PolyVee belts.

The last roller within a zone where the torque is transmitted with PolyVee is exposed to a unilateral force. That is why it is not recommended to use a hex spring loaded shaft for the last roller. There is a risk that the shaft moves out of the hex hole.

# TECHNICAL SPECIFICATIONS

#### **Tube materials**

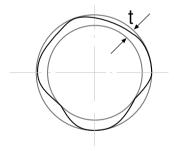
	Carbon steel, electro zinc plated and passivated DIN 2394	Stainless steel DIN 2463
Mechanical characteristics	High resistance and bending stiffness Sensitive to abrasion and scratching damaging the passivation Do not expose to high thermal fluctuations, as there is the risk of cracks in the zinc coating	High resistance and bending stiffness
Dimensions	Outer diameter of 1.9 in and a wall thickness of 0.06 in	Outer diameter of 1.9 in and a wall thickness of 0.06 in
Concentricity deviation	The maximum concentricity deviation is 0.01 in	The maximum concentricity deviation is 0.01 in
Chemical resistance	Resistant to corrosion when the zinc coating is undamaged	Resistant to corrosion

## Concentric deviation

The concentric deviation is the maximum radial deviation of the tube section from the perfect circle.

For example, a concentric deviation (t) of 0.01 in means that the radial deviation of the entire tube is 0.01 in.

The smaller the concentric deviation of the rollers is, the better is the frictionless transport of the conveyed items and the higher is the life-expectancy of the rollers.



The concentric deviation depends on the tube's length, diameter and material. The concentric deviation increases depending on the size of a tube. It is recommended to use larger diameters for long tubes.

Concentric deviation (t)

#### **Tube sleeving**

The RollerDrive and the rollers can be sleeved with PVC or PU sleeves.

	PVC sleeve	PU sleeve
Color	grey	orange
Wall thickness [in]	0.08	1/8
Outer diameter on Roller [in]	2.06	2.15
Hardness	63 shore	80 shore

With a hardness of 63 or 80 shore, the friction between the conveyed item and the RollerDrive is quite positively increased. In addition, the material is scratch-resistant and and resistant to several chemicals. The sleeves fulfill RoHS requirements.





## **Technical Specifications**

All RollerDrive bearing housings on the motor end are made from electro conductive Techno Polymer material. This solves the problem of static charged electronic components in the RollerDrive. Electric conduction is transmitted via the bearings to the conveyor's profile. For this reason, it is essential to properly ground the conveyor module. Rollers with torque transmission are usually shipped in anti-static design. For rollers without torque transmission, the antistatic design must be ordered separately.

**Shafts** 

# TECHNICAL SPECIFICATIONS

#### Curves

For applications with curves, there are tapered RollerDrives and rollers. In the interior of these rollers there is an ordinary RollerDrive or roller with tapered sections. Thanks to the tapered shape of the rollers, the load is conveyed around the curve without contacting the conveyor's lateral profiles. The shaft of the tapered roller must be installed with an inclination of 1.8°. In order to fasten the rollers/RollerDrive securely, there must be a 1.8° angle compensation.



#### Torque transmission

Standard O-rings and PolyVee belts are available in combination with the fixed drive roller series 3500. Due to the projecting end of the drive head (RL = EL - 36) the inner curve radius R, are 770 mm and 820 mm.

#### Zones

Additional zones must be set up in curves to avoid accumulations of conveyed items. As pressure builds up and accumulates in an outward direction, conveyed items in curves are likely to be pushed over the conveyor frame. This may result in damage to conveyed items and persons.

#### **Dimensioning**

In dimensioning the RollerDrive, it is important to use the mean diameter of the tapered elements to calculate the required torque and conveyor speed. The fitting length should be calculated so that the conveyed items do not contact the side profiles during transport.

The following steps are required:

Calculation for minimum outer radius R<sub>a</sub> or minimum roller length EL<sub>min</sub>

$$R_a = \sqrt{(R_i + W)^2 + (\frac{L}{2})^2} + 50$$

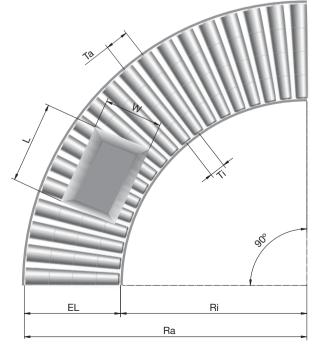
$$EL_{min} = R_a - R_i$$

Adapting the calculated  $EL_{min}$  to the standard length: (next larger size in 50 mm increments)

286, 336, 386 ... 936 mm (250, 300, 350 ... 900 mm for gravity rollers)

Calculation of actual R<sub>a</sub> with selected standard fitting length (EL):

$$R_a = EL + R_i$$





# **Technical Specifications**

#### Roller pitch in curves

The roller pitch T<sub>a</sub> depends on the properties and condition of the conveyed item and should be selected so that safe transport is ensured. In selecting the smallest possible roller pitch T,, the diameter of the tapered elements must be taken into account so that these do not contact each other. Otherwise, any T, value can be selected. The only restriction to observe is that the first or last roller has a ratio to the curve's total angle of approx. T/2 and that standard belts lengths are also considered.

Roller pitch  $T_a$ , measured at the inner edge of the outer profile, can be calculated with the following formula:

$$T_a = \frac{T_i \cdot R_a}{R_i}$$

The friction in curves is 50 % higher for straight conveyor sections. That is why a higher torque and a lower speed is required.

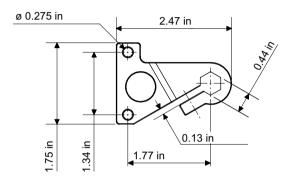
Using a higher gear speed offsets the larger diameter of the tapered rollers.

# TECHNICAL SPECIFICATIONS

## **Anti-spin** bracket

If you are using a RollerDrive EC110 with solid hex shaft, you should secure it with an anti-spin bracket. This prevents the RollerDrive from rotating in the frame's hole.

### Anti-spin bracket dimensions (flat up version)



### Anti-spin bracket and hardware kit

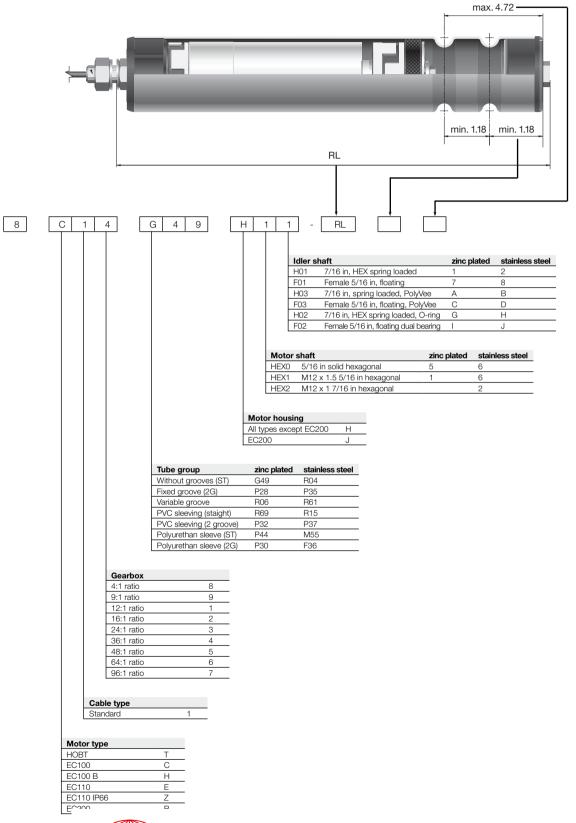
No.	Description	Qty
1	Bracket flat up	1
•	Bracket point up	1
2	Template	1
3	1/8" Allen wrench	1
4	Button head screw	1
5	Serrated flange hex cap screw	2
6	Hex tooth washer nut	2
	-	

To correctly adjust the hole pattern, use the template included in delivery.

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# ROLLERDRIVES CONFIGURATOR





# ARTICLE NUMBERS

#### **Controls**

#### **DriveControls**

Article	Article number
DC-EC100	8916A
DC-EC200	9008

#### **ZoneControls**

Article	Article number
HC-EC100	9000
HC-EC100 Full	9001
HC-EC110	9004

#### Accessories

#### **Cables RollerDrives**

Article	Cable length [in]	Article number
Extension cable RollerDrive - DriveControl	63	89VK

## Anti-spin bracket

Article	Article number
Anti-spin bracket flat up	N582
Anti-spin bracket point up	N583



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