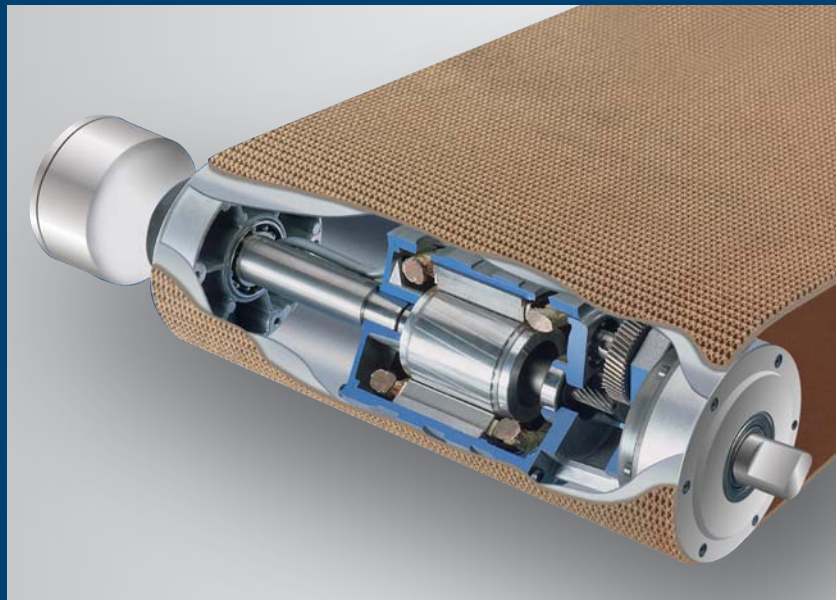




DURA•DRIVE PLUS



PRODUCT CATALOG

DURA•DRIVE PLUS vs.

Conventional Chain or V-Belt Drive Systems: By Every Important Measure, It's No Comparison

Unlike conventional drive systems, the new DURA-DRIVE PLUS motorized pulley has no chains or V-belts to tighten or replace, no sprockets to align, clean or lubricate, no bearings to grease, and doesn't require chain guards that need replacing.

It's a simple - yet small and powerful - one-piece motorized pulley that's guaranteed to power your belt conveyor for years without breakdown. All gearing is made of high-quality alloy steel, not plastic. Just an in-place oil change after 25,000 hours is all that's ever needed. No disassembly required.

The result: Almost no maintenance or downtime. And that means lower costs and higher productivity.

Compact...safer, cleaner operation

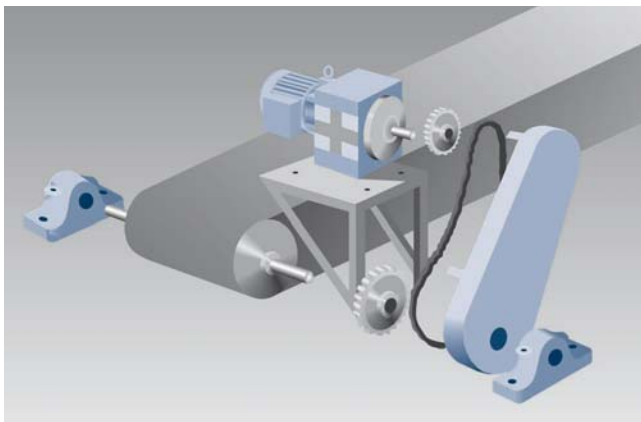
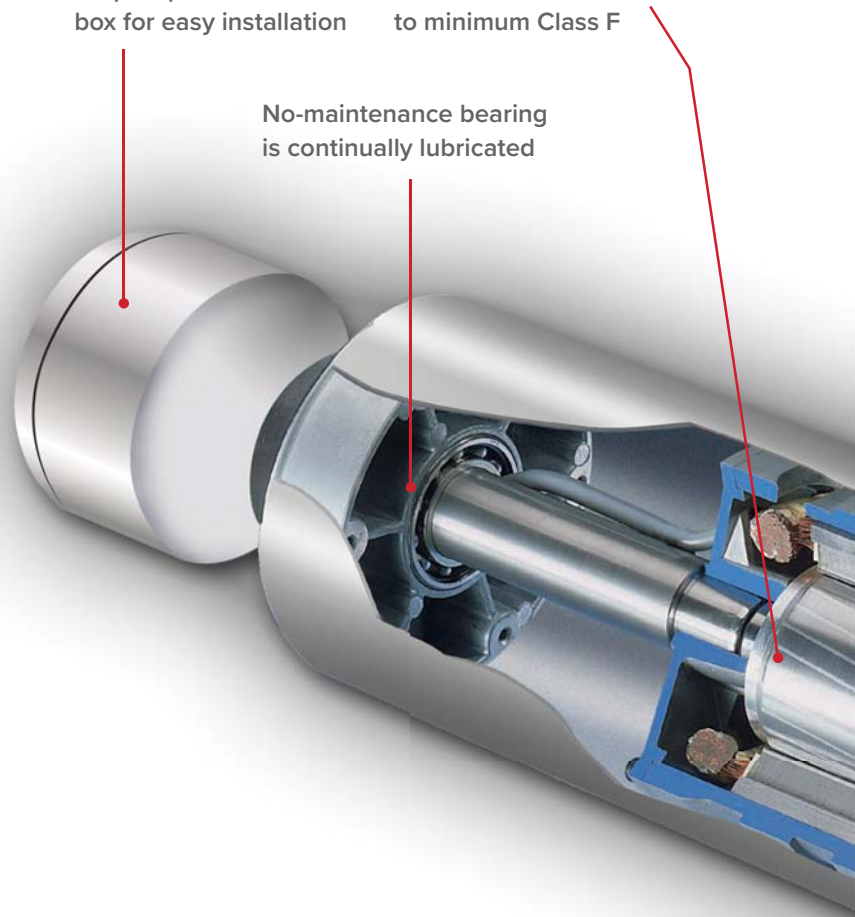
Unlike bulky conventional drive systems that fit externally on a conveyor, DURA-DRIVE PLUS is actually part of the conveyor and much more compact. That means you can fit more conveyor into less floor or overhead space.

Also, all moving parts are enclosed in the steel pulley shell, eliminating hazardous moving parts and pinch points, along with the potential for electric shock from water on motors. DURA-DRIVE PLUS is cleaner because there's no external grease or oil from chains, bearings or couplings. As a result, you improve worker safety and more readily comply with OSHA standards.

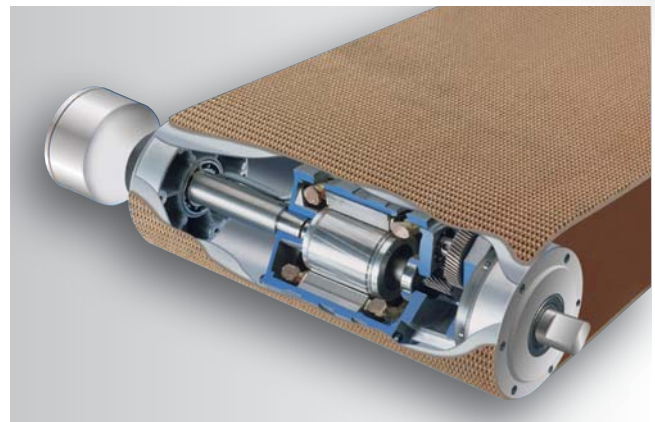
Ample space in terminal box for easy installation

Electric motor wound to minimum Class F

No-maintenance bearing is continually lubricated



Conventional drive system



DURA-DRIVE PLUS motorized pulley

What is a motorized pulley?

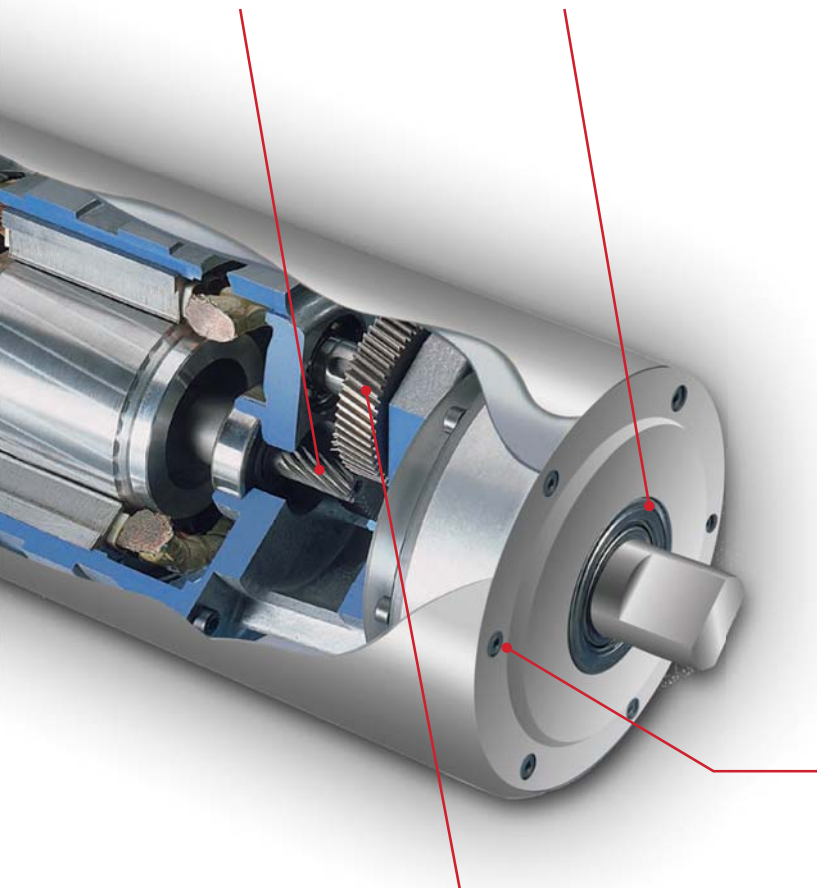
A motorized pulley is a drum motor in which the body rotates around a stationary shaft. The rotating outer “drum” becomes the traction surface which powers the conveyor belt.

Electric power leads pass through the stationary shaft to motor terminals inside the pulley housing. Since the end shaft does not rotate, there is no need for slip rings to deliver electrical power to the motor windings.

The entire internal mechanism, including the motor, gears and bearings, are completely sealed and protected by the outer metal drum. Oil inside the drum continuously lubricates bearings and gears, and removes heat from motor windings.

Parallel gearing system for greater efficiency and quiet operation

Metallic labyrinth sealing to IP66 or IP67 keeps out dirt and water



Quiet operation

DURA-DRIVE *PLUS* operates at a very quiet 57-64 decibels, compared to 76-80 decibels for a typical conventional drive. Quieter operation can help you meet OSHA noise regulations, eliminate the need for costly ear protective devices for workers, and improve your overall work environment.

Simple design means easy specification for new systems, easy installation for existing ones

Because DURA-DRIVE *PLUS* is a one-piece pulley and not 10 or more separate components like a conventional drive, it can be easily specified into new systems and dramatically reduce design time. For existing systems, the pulley comes with two mounting brackets and hardware. Changeover takes less than an hour per drive.

DURA-DRIVE *PLUS*... a cost-effective alternative to conventional drive systems

DURA-DRIVE *PLUS* is priced competitively with conventional systems initially, and is more energy efficient. For example, a conventional system normally transfers only 60-75% of its mechanical efficiency (horsepower) to the belt. DURA-DRIVE *PLUS* transfers 95% of its capacity to the belt – a 20-35% increase.

This savings can translate into a reduction of hundreds of dollars in energy costs – *per drive, per year*. When you add in the reduced maintenance costs – *per drive, per year* – it's easy to see how DURA-DRIVE *PLUS* motorized pulleys can quickly pay for themselves, in a matter of months.

Other applications for motorized pulleys:

Motorized pulleys can be used for many applications. For example, by machining grooves in the shell or rubber lagging, the motor can be used to drive V-belt and round-belt driven conveyors.

Wheels and sprockets or special profiled lagging can be attached to the shell to drive plastic modular belts or chain conveyors.

Optional Bolt-on end cap for easy servicing

Gearing made of high-quality alloy steel with precision-cut helical and hardened polished teeth and gears, honed and ground for low noise.

Specifications, Materials, Options

End Caps:

Sparks Belting motorized pulleys are supplied with press-fit or bolt-on end caps for easier servicing. The housings are manufactured from seawater-resistant aluminum or iron; 304 stainless steel is also available.

Shaft Seal:

The end housings are fitted internally with double lip oil seals and externally with steel or stainless steel labyrinth seals. This provides excellent protection against ingress of dust, grit, water and moisture and even high-pressure cleaning. The steel shafts are fitted with smooth precision wear sleeves positioned under the double lip oil seals. This prevents wear to the shaft and seals.

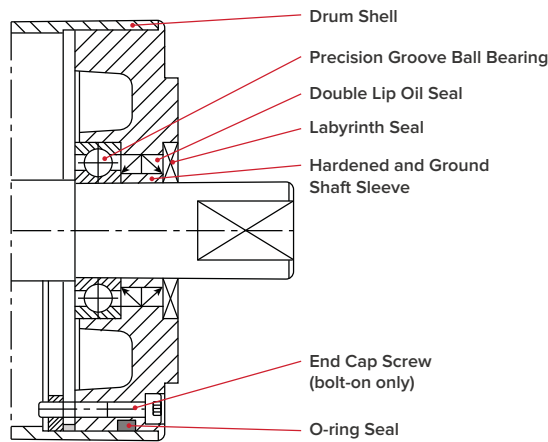
Protection Class:

All Sparks Belting motorized pulleys are protected to IP66, in accordance with VDE 0470 and therefore suitable for applications, requiring high-pressure washdowns.

For special applications, protection class IP67 with stainless steel labyrinths or teflon boot seals are also available.

Shafts:

Fixed and variable shafts are manufactured from mild steel and have identical shaft diameters and shaft flats at both ends. 304 stainless steel is optional.



Drum Shell:

The outer drum shell is manufactured from thick-walled steel tube with a trapezoidal machined crowned face to ensure correct belt tracking. If desired, a metal shell without crowning can be supplied. The drum shell is also available in 304 stainless steel.

Transmission:

Only two-stage and three-stage gear boxes are used. All gears are made from high-grade steel which are honed and ground for low noise. The belt speeds given in the catalog are nominal. If exact speeds are required, contact Sparks Belting.

Electric Motor:

All Sparks Belting motorized pulleys contain motors tested to UL 1004 – 1:2012 standards with Class F insulation standard (Class H insulation available upon request). The motor is an asynchronous squirrel cage induction type. Class F motors are suitable for most applications with ambient temperatures of +100°F to -10°F. For temperatures above or below, Class H motors should be specified. In some cases, Class H motors are recommended where the pulley will be working without a belt or when fitted with very thick lagging. When in doubt, contact Sparks Belting for a recommendation.

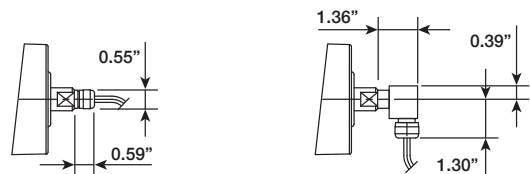
Electric motors with windings for special voltages and frequencies are available upon request.

Sparks Belting motorized pulleys are inverter duty motors and can therefore have a stepless speed control in combination with static frequency converters in the range from 30 to 60 HZ. For speed variations outside this range, contact Sparks Belting.

Electrical Connections:

Standard motorized pulleys fitted with a terminal box are wired for dual voltage.

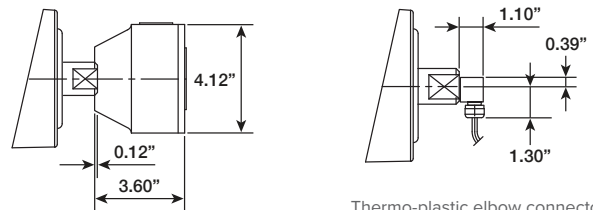
Pulleys with fitted cables are normally supplied for one voltage only. Dual voltage cable is available upon request.



Straight connector and 5.5m cable

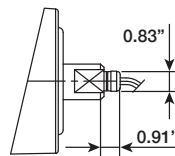
Thermo-plastic elbow connector and 5.5m cable

(above connectors available on 3.19" pulley only)



Stainless Steel terminal box

Thermo-plastic elbow connector and 1.5m cable or 5.5m cable



Straight brass connector and 1.5m cable or 5.5m cable

(above connectors available on 4.39", 5.38", 6.46", 8.48 pulleys)

Bearings:

Only high-quality, single row or double row precision ball bearings and needle bearings are used.

Specifications, Materials, Options

Casing Parts:

Gearbox, stator casing, and rear flange are made of high density aluminum alloy. In high torque applications, ductile iron components are used.

Back Stop:

A backstop bearing can be placed in the drum motor to prevent product roll back. This option is used primarily on inclined belt conveyors.

Thermal Overload Protection:

Sparks Belting motorized pulleys are equipped with thermal protection (TF) in the stator of windings. This prevents motor failure due to overheating or overloading. The TF will automatically reset, but the motor must be re-started manually.

Cooling/Lubrication:

The cooling of the electric motor and the lubrication of the transmission parts and ball bearings is affected by means of SAE 90 gear oil. The drum motor is factory oil-filled before delivery. For applications with temperatures

below -10°F or above 100°F, or when pulleys will be used without a belt, contact Sparks Belting. Sparks Belting motorized pulleys are designed principally for belt conveyors. The angle between the longitudinal axis of the pulley and the horizontal axis must not exceed 5°F. If it does, lubrication may be insufficient and damage to the unit could occur. See page 6 for oil fill requirements and installation/maintenance recommendations.

Rubber Lagging:

To achieve proper friction between the drum face and conveyor belt, Sparks Belting offers lagging made of hot or cold-vulcanized 1/8", 1/4" plain black or white, oil & fat resistant rubber or hot vulcanized rubber. Other types of materials (such as neoprene, silicone, pvc, etc.) and patterns (such as diamond or grooved) are available.

Rubber lagging can cause thermal overload. To prevent this, the required power should be multiplied by a factor of 1.2. Due to the increased thickness or rubber lagging, the belt speed will increase accordingly.

OPTIONS OVERVIEW

Item	DRUM DIAMETERS (in.)				
SHAFT:	3.19	4.39	5.38	6.46	8.48
Mild Steel	⚙	⚙	⚙	⚙	○
Stainless Steel	○	○	○	○	○
SHELL:					
Mild Steel	⚙	⚙	⚙	⚙	○
Stainless Steel	○	⚙	⚙	⚙	○
Hard Chrome	○	○	○	○	○
Rubber Lagged	○	○	○	○	○
Crowned	⚙	⚙	⚙	⚙	⚙
Flat Face	○	○	○	○	○
V-Grooves	○	○	○	○	○
Sprockets	○	○	○	○	○
END CAPS:					
Aluminum	⚙	⚙	X	X	X
Mild Steel	X	X	○	○	○
Stainless Steel	○	○	○	○	○
Bolt-on	X	○	○	○	○
Pressed / Glued	⚙	⚙	⚙	⚙	⚙
V-Grooves Pulley	○	○	○	○	○
O-Grooves Pulley	○	○	○	○	○
Chain Sprockets	○	○	○	○	○
SEALING SYSTEM:					
IP67 with S/S Labyrinth	○	○	○	○	○
IP66 with Labyrinth	⚙	⚙	⚙	⚙	⚙
⚙ - Standard ○ - Option X - Not Available For special requirements not listed above, please contact Sparks Belting for information.					

Item	DRUM DIAMETERS (in.)				
ELECTRICAL MOTOR:	3.19	4.39	5.38	6.46	8.48
3 Phase Asynchronous	⚙	⚙	⚙	⚙	○
Single Phase	X	X	X	X	X
Dual Voltage (face width restrictions)	X	○	○	○	○
Wide Range Voltage	X	⚙	⚙	⚙	⚙
Thermal Overload Protection	○	⚙	⚙	⚙	⚙
ELECTRICAL CONNECTION:					
Straight Connector and 1.5 Cable (5.5m optional)	⚙	○	○	○	○
Thermo-plastic Elbow Connector and 1.5 Cable (5.5m optional)	○	○	○	○	○
S.S. Junction Box for 4.39", 5.38", 6.46", 8.48"	X	⚙	⚙	⚙	⚙
LB50Y Steel Elbow Connector, 0.75" NPT	X	○	○	○	○
MOTOR INSULATION:					
Class F	⚙	⚙	⚙	⚙	⚙
Class H	○	○	○	○	○
OPTIONS:					
Backstop Bearing	X	○	○	○	○
Vertical Mount	○	○	○	○	○
Plastic Modular Belt Drive	○	○	○	○	○
Positive Drive Plastic Belt Drive	○	○	○	○	○
USDA 3A Dairy Certified Design	X	X	○	○	○

Installation & Maintenance

Drum Motor Diameter (inches) / Oil Contents in liters for horizontal mounting*

Inches	3.19	4.39	5.38	6.46	8.48
9.84	0.14	0.40			
11.81	0.18	0.40	0.70		
13.76	0.24	0.45	0.70	1.10	
15.75	0.30	0.50	0.80	1.20	
17.72	0.40	0.60	1.00	1.30	
19.69	0.45	0.70	1.10	1.40	3.60
21.65	0.50	0.80	1.30	1.60	4.00
23.62	0.55	0.90	1.40	1.80	4.50
25.59	0.60	1.00	1.60	2.00	4.80
27.56	0.65	1.10	1.70	2.10	5.30
29.53	0.70	1.20	1.90	2.30	5.60
31.50	0.75	1.30	2.00	2.50	6.00
33.46	0.80	1.40	2.20	2.70	6.50
35.43	0.85	1.50	2.30	2.90	6.90
37.40		1.60	2.40	3.10	7.20
39.37		1.70	2.60	3.30	7.60
41.34		1.80	2.80	3.50	8.10
43.31		1.90	3.00	3.70	8.50
45.28		2.00	3.20	3.90	8.90
47.24		2.10	3.40	4.10	9.20
49.21		2.20	3.60	4.30	9.60
51.18		2.30	3.80	4.50	10.10
53.15		2.40	4.00	4.70	10.50
55.12		2.50	4.20	4.90	10.80
57.09		2.60	4.40	5.10	11.20
59.06		2.70	4.60	5.30	11.70

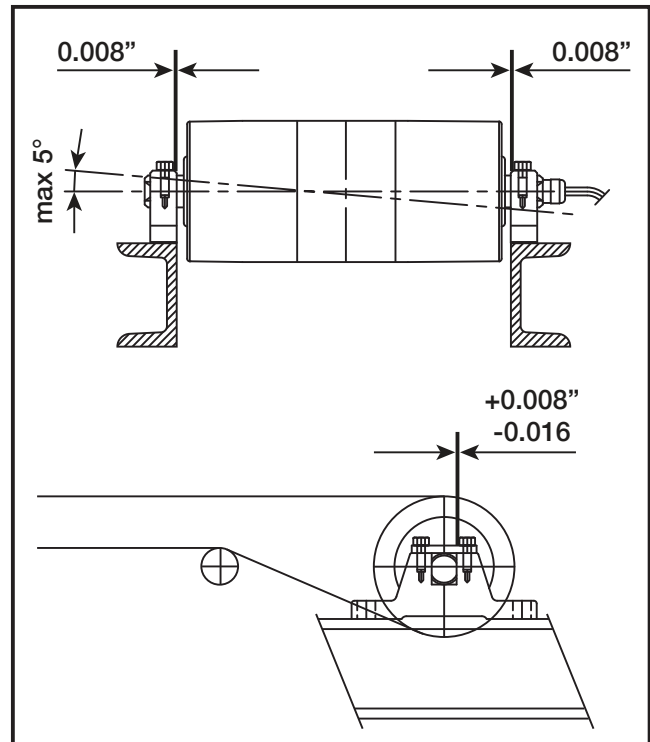
*NOTE: The oil content for special motors mounted vertically will differ to the amount stated above.

Drum Motor Diameter (inches)	Ambient Temp. °F	Oil Type DIN 51517
3.19	-22-104	Permagear 150
4.39 / 5.38	-22-104	FG Gear Oil 1220
6.46 / 8.48	-30-125	Synthetic Exxon Peresstic FH P 150

Sparks Standard Oil is D-A Wearguard SYN FQG Series, Food Grade

Installation

Sparks Belting motorized pulleys are designed for horizontal installation, unless otherwise specified in writing on the order confirmation. Sparks Belting motorized pulleys have identical shaft ends on both sides, so they can be mounted in various positions to suit the conveyor construction.



For motorized pulleys with backstop the motor must be connected for the correct direction of rotation.

The shaft ends must be mounted in parallel grooves and tightened with a clamp to ensure no axial or rotational movement. Where possible, DURA-DRIVE PLUS mounting brackets should be used.

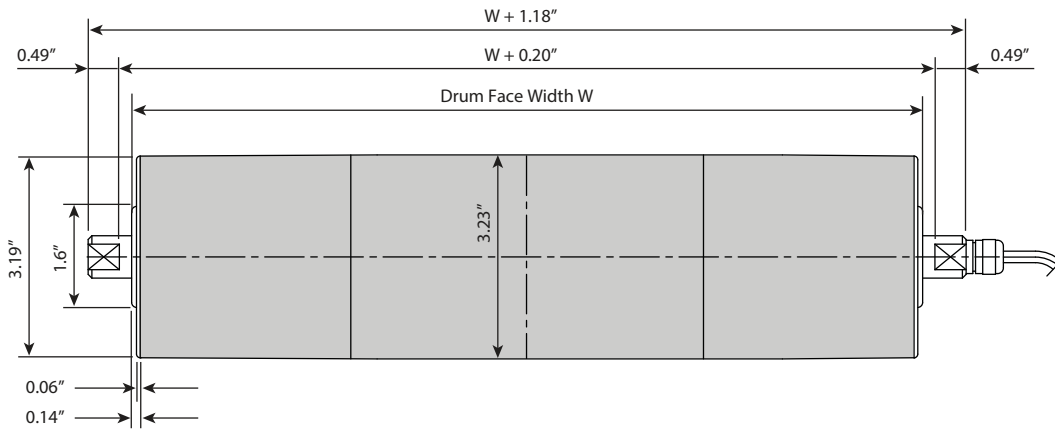
Minimum width for the mounting brackets should be half the length of the shaft flat.

CAUTION

Make sure serial number on the shaft are positioned upright and are not more than 90° from the horizontal line; otherwise insufficient lubrication will occur.

3.19" Diameter Drum Motor

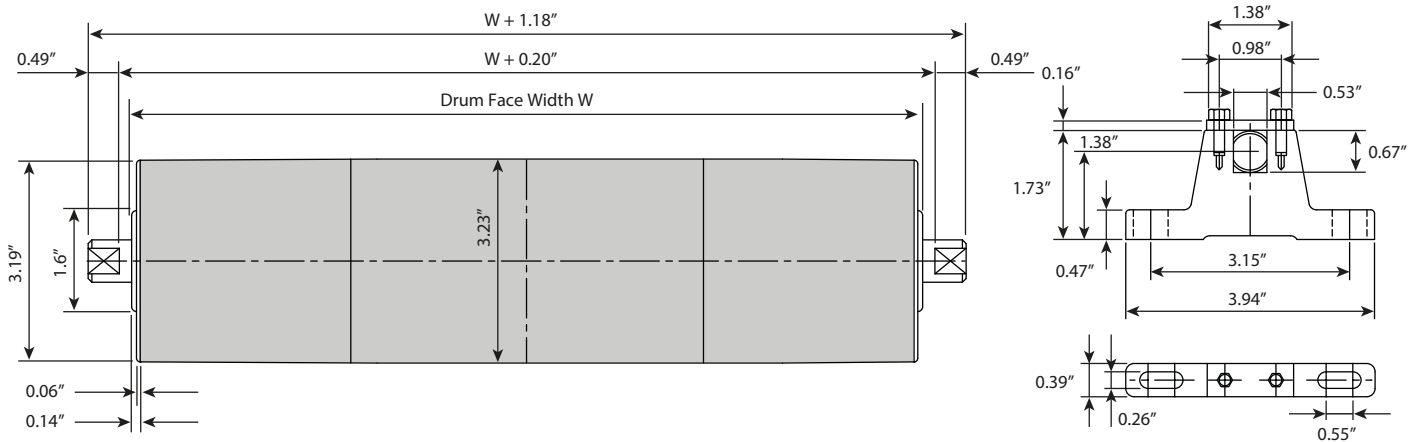
Motorized Pulley



Mounting Bracket

Material: Cast iron or stainless steel bracket

Idler Pulley



Performance Specifications

HP	Minimum Face Width	FPM (nominal)	Belt Pull (lbs)	Drum Torque (ft/lbs)
0.024	9.84"	12	93	12
		27	85	11
		35	69	9
0.05	7.87"	65	31	4
		41	96	13
		71	52	7
0.10	7.87"	104	39	5
		54	89	12
		71	74	10
0.16	9.84"	94	56	7
		133	40	5
		189	28	4
		236	22	3

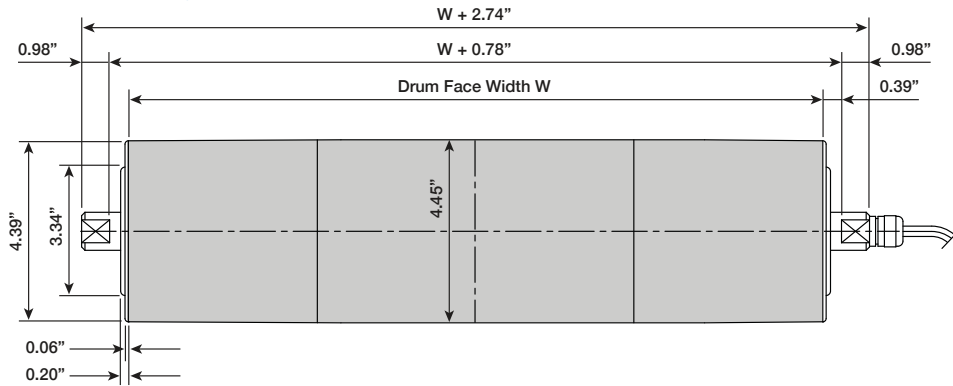
Standard Face Widths - Weight (lbs)

11.81" (19 lbs)	13.78" (21 lbs)	15.75" (22 lbs)	17.72" (24 lbs)	19.69" (25 lbs)
21.65" (29 lbs)	23.62" (31 lbs)	25.59" (33 lbs)	27.56" (35 lbs)	29.53" (36 lbs)
31.50" (38 lbs)	33.46" (39 lbs)	35.43" (41 lbs)		

1. Maximum face width is 59.50"
2. Other speeds and face widths are available
3. Maximum lagging thickness is 1/8" (8% increase in finished speed)
4. V-groove option must be two times the min. face width and groove width
5. Same diameter (3.23") grooved tube is only option
6. All units are available in 3-phase single voltage, 230v or 460v
7. No vertical mount

4.39" Diameter Drum Motor

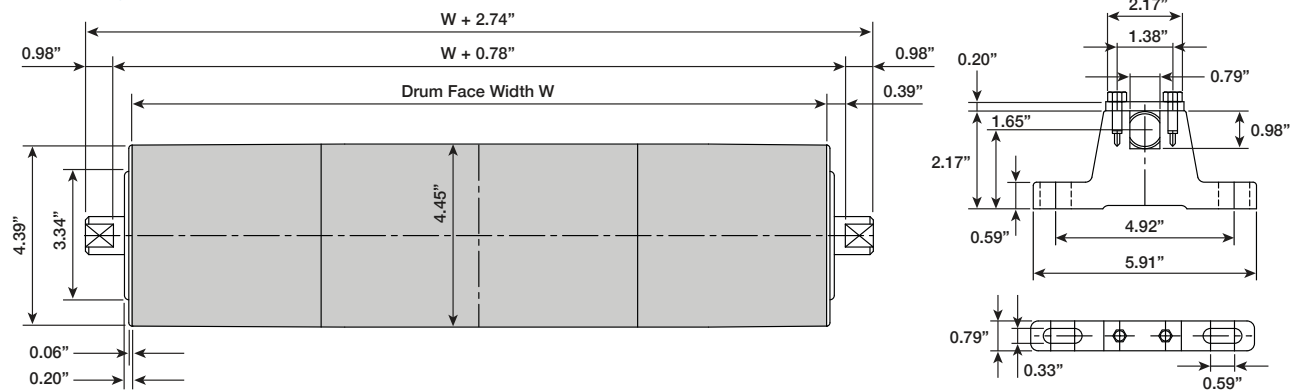
Motorized Pulley



Mounting Bracket

Material: Cast iron or stainless steel bracket

Idler Pulley



Performance Specifications

HP	Minimum Face Width	FPM (nominal)	Belt Pull (lbs)	Drum Torque (ft/lbs)
0.2	9.84"	47	140	26
		65	97	18
		94	70	13
0.25	11.81"	29	289	53
		41	186	34
0.4	11.81"	47	280	51
		65	198	36
		71	186	34
		94	140	26
		104	124	23
0.5	11.81"	104	151	28
		118	140	26
		142	116	21
		189	87	16
		280	60	11
		325	49	9

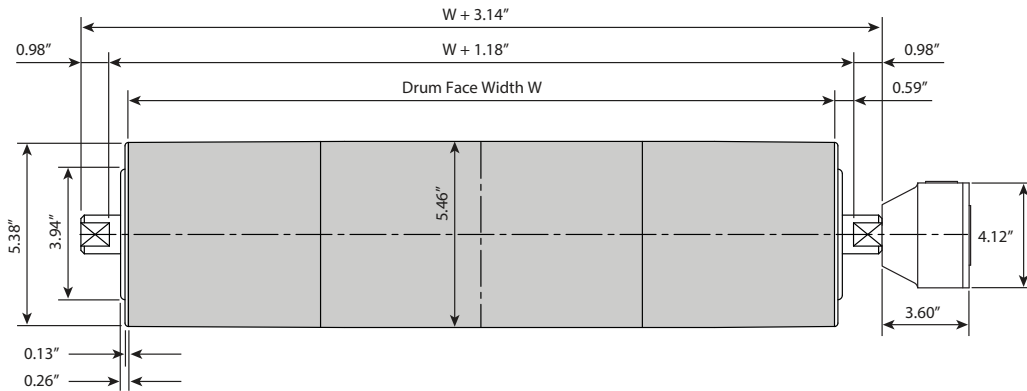
Standard Face Widths - Weight (lbs)

9.84" (30 lbs)	11.81" (31 lbs)	13.78" (33 lbs)	15.75" (36 lbs)	17.72" (37 lbs)
19.69" (39 lbs)	21.65" (41 lbs)	23.62" (43 lbs)	25.59" (46 lbs)	27.56 (49 lbs)
29.53" (51 lbs)	31.50" (53 lbs)	33.46" (56 lbs)	35.43" (58 lbs)	37.40 (60 lbs)

1. Maximum face width is 59.5"
2. Other speeds and face widths are available
3. Add 1.97" to min. face width for bolt-on end caps
4. Maximum lagging thickness is 1/8" (6% increase in finished speed)
5. V-groove option must be two times the min. face width
6. Same diameter (4.45") grooved tube is only option
7. All motors can be single or dual voltage 230v or 460v 3 phase

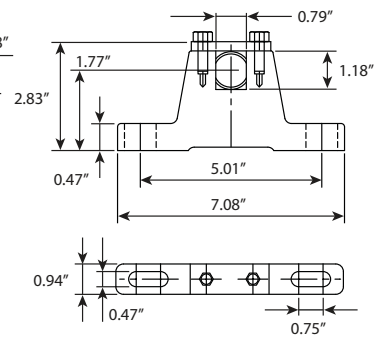
5.38" Diameter Drum Motor

Motorized Pulley

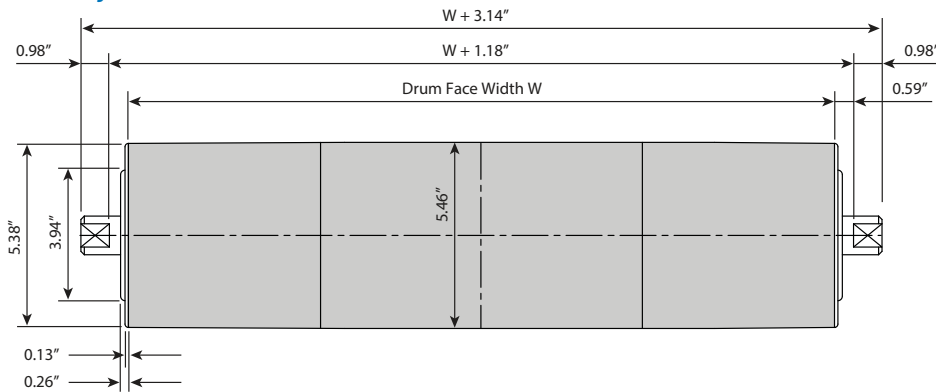


Mounting Bracket

Material: Cast iron or stainless steel bracket



Idler Pulley



Performance Specifications

HP	Minimum Face Width	FPM (nominal)	Belt Pull (lbs)	Drum Torque (ft/lbs)
0.25	13.78"	19	412	91
0.34	13.78"	26	422	93
		31	341	75
		54	196	43
0.5	11.81"	38	434	98
		47	351	78
		65	243	54
		85	185	41
		104	153	34
0.75	11.81"	133	117	26
		85	279	62
		104	225	50
		133	176	39
		175	135	30
		210	113	25
1	13.78"	280	86	19
		295	77	17
		430	54	12
		59	545	120
		85	381	84
	104	308	68	
	133	240	53	

Performance Specifications

HP	Minimum Face Width	FPM (nominal)	Belt Pull (lbs)	Drum Torque (ft/lbs)
1.5	13.78"	104	450	99
		133	354	78
		189	250	55
		260	182	40

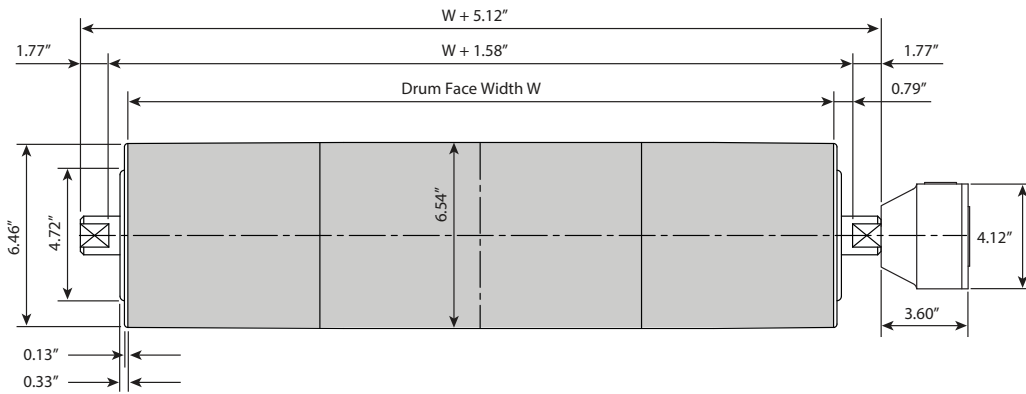
Standard Face Widths - Weight (lbs)

11.81" (53 lbs)	13.78" (55 lbs)	15.75" (57 lbs)	17.72" (59 lbs)	19.69" (62 lbs)
21.65" (65 lbs)	23.62" (68 lbs)	25.59" (71 lbs)	27.56" (73 lbs)	29.53" (76 lbs)
31.50" (79 lbs)	33.46" (83 lbs)	35.43" (85 lbs)	37.40" (87 lbs)	39.36" (89 lbs)

1. Maximum face width is 81"
2. Other speeds and face widths are available
3. Add 1.97" to min. face width for bolt-on end caps
4. Maximum lagging thickness is 1/4" (9% increase in finished speed)
5. For V-groove tube diameter of 5.45", length must be 2 times the min. face width
6. For V-groove tube diameter of 6.45", length can be same as min. face length (22% increase in finished speed)
7. All motors can be single or dual voltage 230v or 460v 3 phase

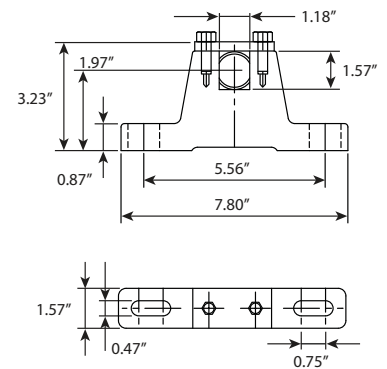
6.46" Diameter Drum Motor

Motorized Pulley

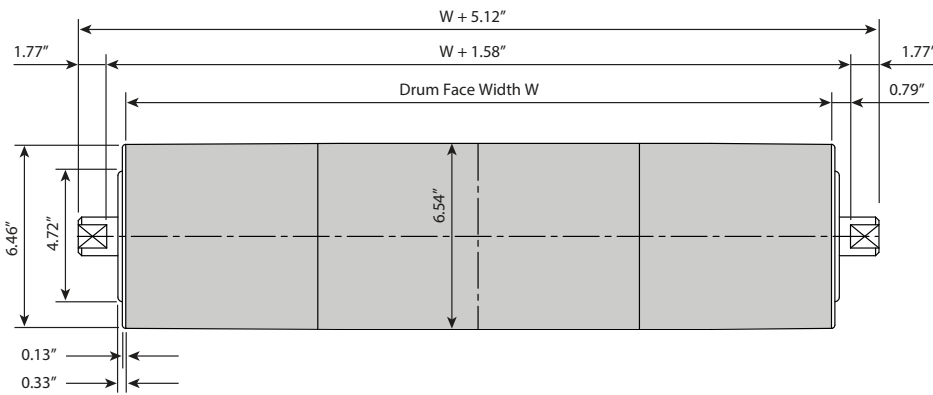


Mounting Bracket

Material: Cast iron or stainless steel bracket



Idler Pulley



Performance Specifications

HP	Minimum Face Width	FPM (nominal)	Belt Pull (lbs)	Drum Torque (ft/lbs)
0.5	17.72"	21	752	200
		31	797	212
		38	650	173
0.75	15.75"	47	526	140
		59	419	111
		104	227	60
		65	488	130
		74	439	117
1	15.75"	104	304	81
		118	266	71
		149	221	59
		189	175	47
		235	140	37
1	17.72"	38	867	231
		104	611	162
2	17.72"	118	539	143
		149	430	114
		189	351	93
		235	280	75

Performance Specifications

HP	Minimum Face Width	FPM (nominal)	Belt Pull (lbs)	Drum Torque (ft/lbs)
3	17.72"	118	838	223
		149	663	176
		205	468	124
		295	335	89
		374	253	67
		472	200	53

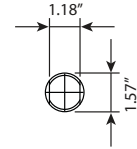
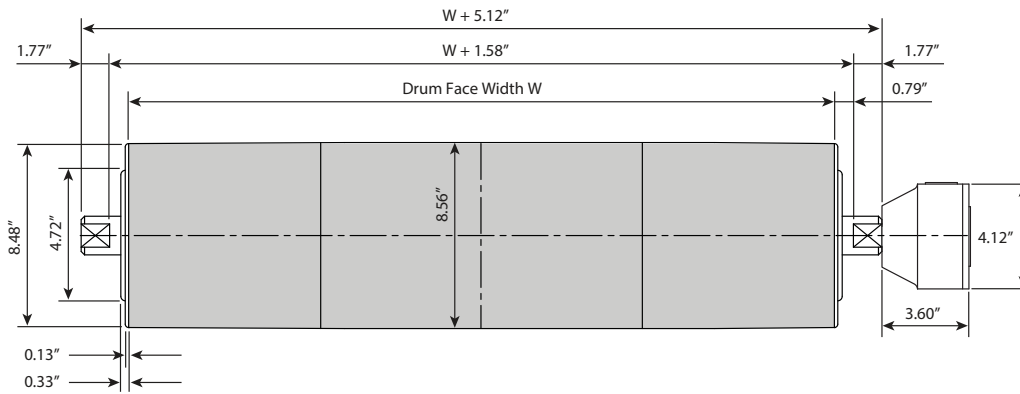
Standard Face Widths - Weight (lbs)

15.75" (119 lbs)	17.72" (122 lbs)	19.69" (125 lbs)	21.65" (128 lbs)	23.62" (131 lbs)	25.59" (134 lbs)
27.56 (137 lbs)	29.53" (140 lbs)	31.50" (143 lbs)	33.46" (146 lbs)	35.43" (149 lbs)	37.40 (152 lbs)
39.36" (155 lbs)	41.33" (158 lbs)	43.30" (161 lbs)	45.27" (164 lbs)		

1. Maximum face width is 96"
2. Other speeds and face widths are available
3. Add 1.97" to min. face width for bolt-on end caps
4. Maximum lagging thickness is 3/8" (11% increase in finished speed)
5. For V-groove tube diameter of 6.50", length must be 2 times the min. face width
6. For V-groove tube diameter of 7.45", length can be same as min. face length (17% increase in finished speed)
7. All motors can be single or dual voltage 230v or 460v 3 phase

8.48" Diameter Drum Motor

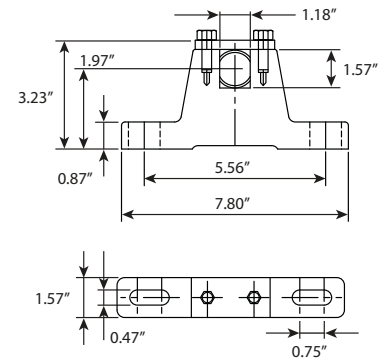
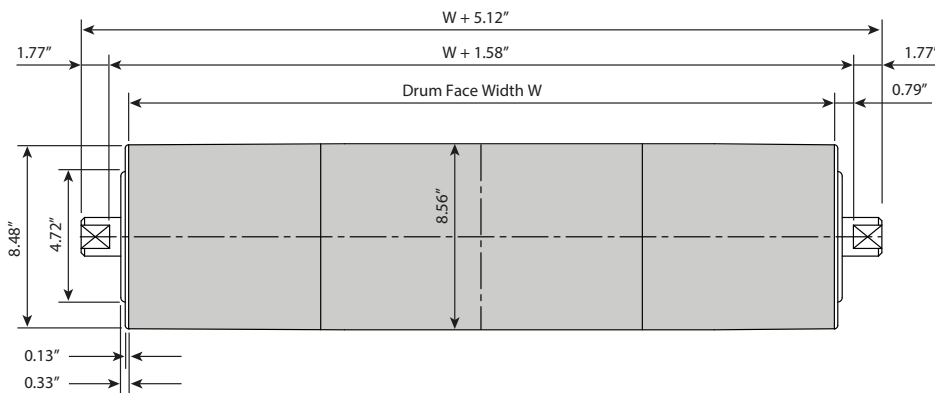
Motorized Pulley



Mounting Bracket

Material: Cast iron or stainless steel bracket

Idler Pulley



Performance Specifications

HP	Minimum Face Width	FPM (nominal)	Belt Pull (lbs)	Drum Torque (ft/lbs)
1.5	19.69"	47	1052	372
		59	838	296
		76	650	230
2	19.69"	63	997	352
		80	824	291
3	19.69"	92	1075	380
		118	838	296
		149	663	234
		189	523	185
4	19.69"	149	840	296
		236	559	197
		295	447	158
		472	279	99
5.5	19.69"	295	614	217
		378	479	169
		472	384	136

Standard Face Widths - Weight (lbs)

19.69" (129 lbs)	21.65" (134 lbs)	23.62" (138 lbs)	25.59" (142 lbs)	27.56 (146 lbs)
29.53" (150 lbs)	31.50" (154 lbs)	33.46" (160 lbs)	35.43" (170 lbs)	37.40 (180 lbs)
39.36" (189 lbs)	41.33" (198 lbs)	43.40" (208 lbs)	45.27" (217 lbs)	

1. Maximum face width is 108"
2. Other speeds and face widths are available
3. Add 1.97" to min. face width for bolt-on end caps
4. Maximum lagging thickness is 3/8" (9% increase in finished speed)
5. For V-groove tube diameter of 8.56", length must be 2 times the min. face width
6. For V-groove tube diameter of 9.45", length can be same as min. face length (12% increase in finished speed)
7. All motors can be single or dual voltage 230v or 460v 3 phase

24/7 Service

Sparks keeps your conveyor belting systems moving 24 hours a day, 7 days a week, 365 days a year with our fleet of mobile service units.

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