



# STANDARD SERIES DRUM MOTORS | TM100 - TM315

ø4.0" to ø12.5" diameter • 0.11 to 15.0 hp

**BELT PULL (BP) = (F0 + F1 + F2)**

**Roller Bed Conveyor**

$F0 = 0.04 (2P + Q) L$

$F1 = 0.04 \times R \times L$

$F2 = R \times H$

**Slider Bed Conveyor**

$F0 = 1.1 \times P \times L \times C$

$F1 = 1.1 \times R \times L \times C$

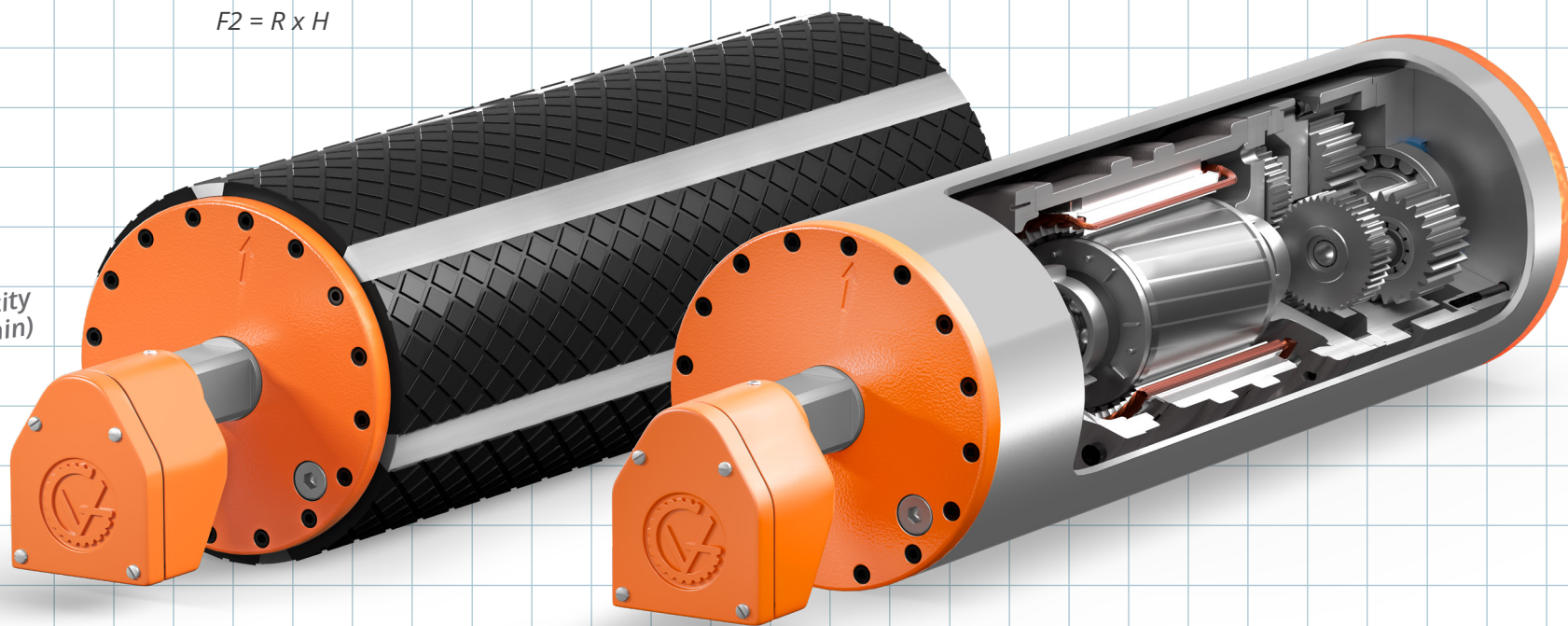
$F2 = R \times H$

- Dimensions and Specifications
- Design Features and Benefits
- Belt Pull Calculations

**RPM:**

$= \frac{V}{\pi (d/12)}$

**V = Velocity (ft/min)**



**HORSEPOWER:**

$HP = \frac{T''lbs. \times RPM}{63025}$

**TORQUE:**

$T''lbs. = \frac{63025 \times HP}{RPM}$



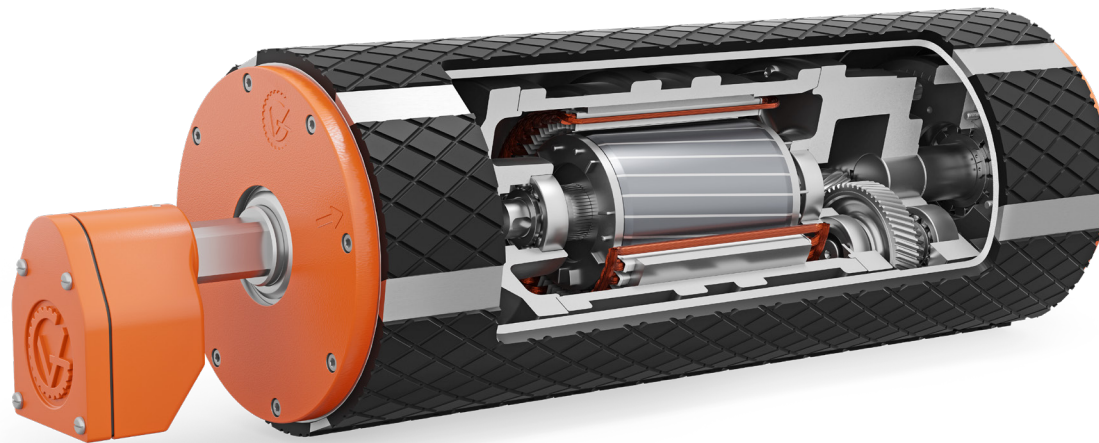
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The VDG Drum Motor is a one-component conveyor belt drive for belt conveyor applications such as packaging, warehousing, mining, aggregate, postal, parcel, airline baggage handling, and food processing. All components of the drum motor are enclosed inside the drive roller, protected from outside elements that can impact the reliability and performance of the drive. With no external components such as motor, gearbox, sprockets, chain, chain guard, or pillow block bearings, the drum motor improves workforce safety and eliminates routine maintenance cycles, reducing downtime and expenses associated with traditional conveyor belt drives.

All components of the VDG Drum Motor are designed for 80,000 hours of continuous operation with no required maintenance. The 96% mechanically efficient gear reducer is in-line with the electric motor, increasing energy efficiency by 25% to 30%, resulting in lower energy consumption and costs. VDG Drum Motors provide a space-saving, less complex, efficient, reliable, and maintenance-free solution to power belt conveyors. Available in a wide range of diameters, belt speeds, horsepower, face widths, and options to suit all types of belt conveyor applications.



[View Video](#)



### REDUCE ENERGY CONSUMPTION

With 96% mechanical efficiency and a premium-efficiency electric motor, VDG Drum Motors reduce energy consumption, resulting in energy savings of 25% to 30% over traditional external conveyor drives.

### ELIMINATE MAINTENANCE CYCLES

Maintenance-free VDG Drum Motors are designed for 80,000 hours of continuous operation before an oil change that is performed without removing the drive. With no external drive components, the drum motor eliminates the constant need for lubricating bearings, chain adjustment, and routine maintenance cycles.

### INCREASE WORKFORCE SAFETY

With all components enclosed inside the drive roller, the VDG Drum Motor eliminates the external components of a traditional conveyor drive that can pose hazard to workforce safety.

### ENHANCE SPACE UTILIZATION

Low-profile VDG Drum Motors reduce the overall footprint of the conveyor (area the conveyor occupies), allowing more conveyors to fit on the same floor or overhead space.

### REDUCE NOISE LEVELS

Gears are manufactured in-house by VDG using state-of-the-art gear cutting and shaping equipment, honed and ground to DIN6 (AGMA12) industry standards for low decibel noise levels that exceed OSHA requirements.

## ELECTRIC MOTORS

All VDG premium-efficiency electric motors are manufactured in-house by VDG to Class H insulation standards, are inverter-duty, and can be supplied for all standard and non-standard voltage at 50 Hz or 60 Hz for 3 phase applications. All VDG electric motors undergo a **Vacuum Pressure Impregnation (VPI)** process, increasing the life of the electric motor.

## PRESSURE EQUALIZATION SYSTEM (PES)

Depending on the application, the heat generated by the electric motor and gear reducer during normal operation will raise the internal pressure to up to 18 psi. The internal pressure will cause tighter than normal engagement of the oil seals to the shaft, resulting in premature oil seal failure. The increased internal pressure will result in oil leakage and a higher operating temperature. The pressure equalization system (PES) releases the internal pressure above 0.5 psi. Lower internal pressure eliminates oil leaves, reduces the operating temperature, and increases the electric motor and gear reducer performance.

## OPTIONS:

### NON-STANDARD LENGTH / EXTRA LONG FACE WIDTH

Please contact your VDG technical representative for details.

### MECHANICAL BACKSTOP (TB)

To prevent rollback for incline conveyors, the backstop device in the drum motor allows the drum motor to rotate only in one direction.

### ELECTROMAGNETIC BRAKE (RTM)

The mechanical electromagnetic brake inside the drum motor allows the drum motor to start and stop 45 times per minute. Available for TM127 and higher.

### OVERLOAD PROTECTION (GV-THERM)

The GV-THERM, a thermal bimetal device embedded into the motor windings that reacts to temperature, provides an additional layer of thermal overload protection.

### ALL-STAINLESS STEEL

For hygienic applications, sanitary drum motors are constructed with stainless steel, including end caps, drum, shafts and junction box.

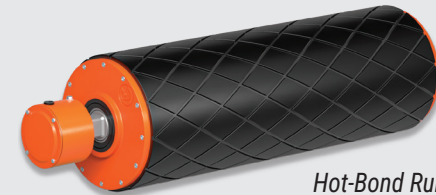
### DRUM MOTOR LAGGING

VDG offers a complete line of lagging materials. Rubber lagging using the hot-bond vulcanization process and, for more abrasive applications, the VDG patented IronGrip™ lagging system is available for TM160 and higher.

### DRUM MOTOR LAGGING OPTIONS:

#### Hot-Bond Rubber Lagging:

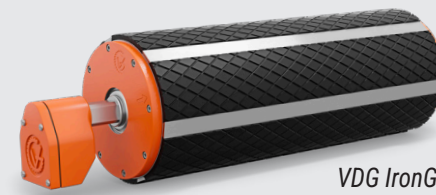
Rubber is wrapped to the desired thickness around the drum using a hot-bond vulcanizing process, providing a seamless and tear-resistant lagging. Various durometer hardness lagging is available in black rubber or USDA/FDA blue or white nitrile rubber in plain, diamond, or chevron patterns.



*Hot-Bond Rubber Lagging*

#### VDG IronGrip™ Lagging: (TM160 & higher)

An extremely durable lagging that increases performance and provides 4 to 5 times longer service life than standard rubber lagging. The VDG patented IronGrip™ lagging system has metal bars welded lengthwise on the drum with hot-bond vulcanized rubber lagging sections between the bars. The metal bars prevent the rubber from wearing below the bars. For extremely abrasive applications, rubber lagging with ceramic tile is also available. IronGrip™ lagging increases traction by 40%, improves belt tracking, and eliminates delamination.

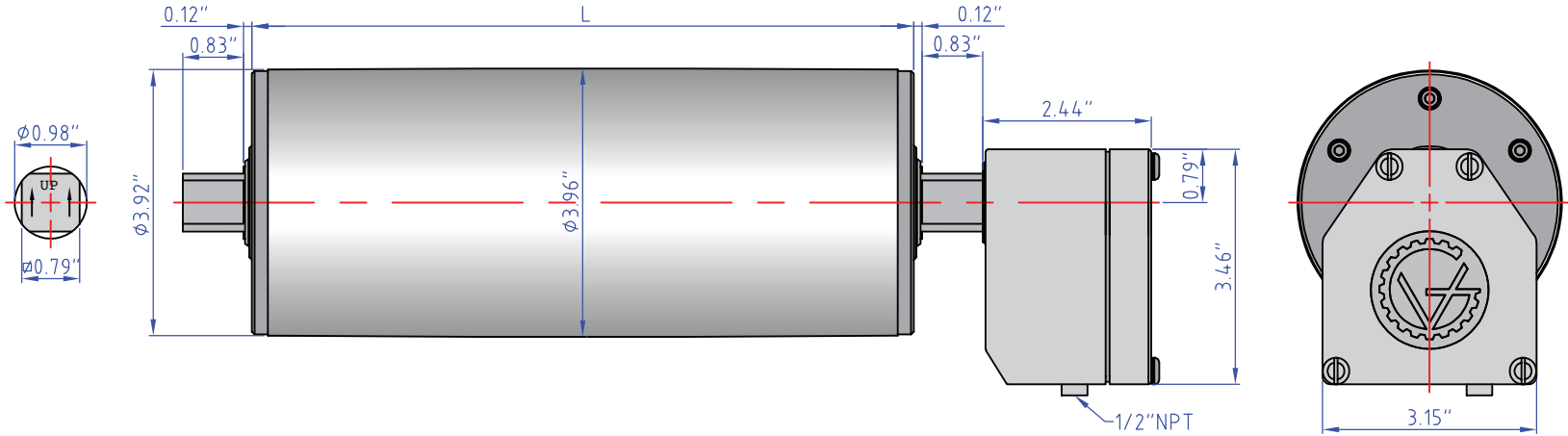


*VDG IronGrip™ Lagging*

[View Video](#)



TM100B25 Drum Motor (maching Idler KT100B25\*\*)



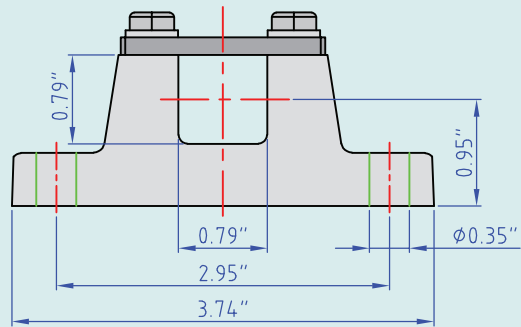
Standard drum motor face widths\* (L) in inches:

10.24	10.83	12.20	14.17	16.14	18.11	20.08	22.05	24.02	25.98
27.95	29.92	31.89	33.86	35.83	37.80	39.76	41.73	43.70	45.67

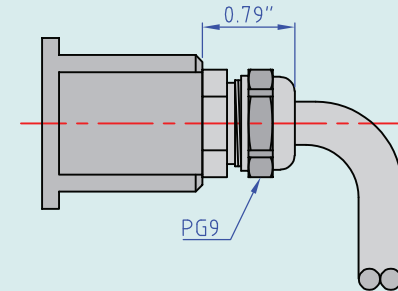
\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

Brackets: 100-AB20



Cable Option:



**TM100B25 Drum Motor**

**0.25 HP**

V (ft/min) M/G	409 4/S2	327 4/S2	291 4/S2	258 4/S2	227 4/S2	199 4/S2	177 4/PL2	157 4/PL2	149 4/PL2	132 4/PL2	111 4/PL2	106 4/PL2	93 4/PL2	83 4/PL2	69 4/PL2
Belt Pull (lbf)	20	25	28	32	36	41	47	52	55	63	74	78	88	100	119
Drum RPM	397	317	282	250	220	193	172	152	145	128	108	103	90	81	67

V (ft/min) M/G	56 4/PL2	44 4/PL3	37 4/PL3	33 4/PL3	27 4/PL3	23 4/PL3	20 4/PL3	17 4/PL3	14 4/PL3
Belt Pull (lbf)	148	189	225	253	274	274	274	274	274
Drum RPM	54	43	36	32	26	22	19	17	14

**0.16 HP**

V (ft/min) M/G	258 4/S2	227 4/S2	199 4/S2	177 4/PL2	157 4/PL2	149 4/PL2	132 4/PL2	111 4/PL2	106 4/PL2	93 4/PL2	83 4/PL2	69 4/PL2	56 4/PL2	44 4/PL3	37 4/PL3
Belt Pull (lbf)	20	23	27	30	34	35	40	48	50	57	64	76	94	121	144
Drum RPM	250	220	193	172	152	145	128	108	103	90	81	67	54	43	36

V (ft/min) M/G	33 4/PL3	27 4/PL3	23 4/PL3	20 4/PL3	17 4/PL3	14 4/PL3
Belt Pull (lbf)	162	193	230	259	274	274
Drum RPM	32	26	22	19	17	14

**0.16 HP**

V (ft/min) M/G	305 6/S2	273 6/S2	218 6/S2	194 6/S2	172 6/S2	152 6/S2	105 6/PL2	99 6/PL2	88 6/PL2	74 6/PL2	71 6/PL2	62 6/PL2	55 6/PL2	46 6/PL2	37 6/PL2
Belt Pull (lbf)	17	19	24	27	31	35	50	53	60	71	74	85	96	114	142
Drum RPM	296	265	212	188	167	148	102	96	85	72	69	60	53	45	36

V (ft/min) M/G	29 6/PL3	24 6/PL3	22 6/PL3	18 6/PL3	15 6/PL3	13 6/PL3	11 6/PL3	9 6/PL3
Belt Pull (lbf)	181	216	243	274	274	274	274	274
Drum RPM	28	23	21	17	15	13	11	9

**0.14 HP**

V (ft/min) M/G	258 4/S2	227 4/S2	199 4/S2	177 4/PL2	157 4/PL2	149 4/PL2	133 4/PL2	111 4/PL2	106 4/PL2	93 4/PL2	83 4/PL2	69 4/PL2	56 4/PL2	44 4/PL3	37 4/PL3
Belt Pull (lbf)	18	20	23	26	29	31	35	42	42	50	56	67	83	106	126
Drum RPM	250	220	193	172	152	145	128	108	103	90	81	67	54	43	36

V (ft/min) M/G	33 4/PL3	27 4/PL3	23 4/PL3	20 4/PL3	17 4/PL3	14 4/PL3
Belt Pull (lbf)	142	169	201	227	271	274
Drum RPM	32	26	22	19	17	14

V = Belt Speed (ft/min)

M/G = Motor/Gear Reducer Configuration (at rated horsepower)



TM100B25 Drum Motor

0.11 HP

V (ft/min) M/G	194 6/S2	172 6/S2	151 6/S2	118 6/PL2	105 6/PL2	99 6/PL2	88 6/PL2	74 6/PL2	71 6/PL2	62 6/PL2	55 6/PL2	46 6/PL2	37 6/PL2	29 6/PL3	24 6/PL3
Belt Pull (lbf)	19	21	24	31	35	36	41	49	51	58	66	79	97	125	148
Drum RPM	188	167	147	115	102	96	85	72	69	60	53	45	36	28	23

V (ft/min) M/G	22 6/PL3	18 6/PL3	15 6/PL3	13 6/PL3	11 6/PL3	9 6/PL3
Belt Pull (lbf)	167	200	237	267	274	274
Drum RPM	21	17	15	13	11	9

V = Belt Speed (ft/min)

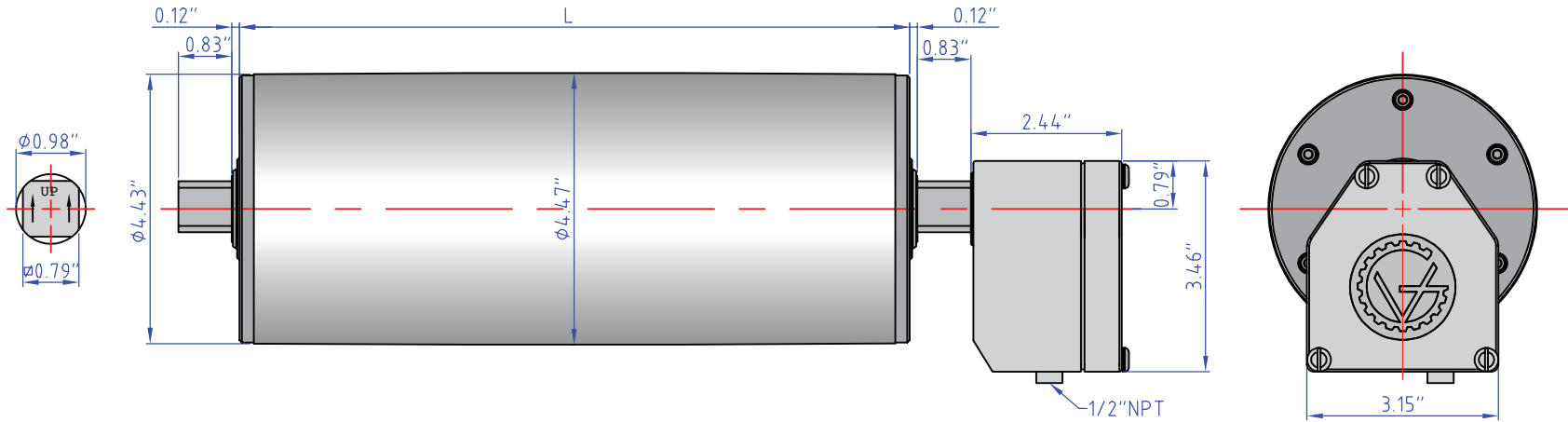
M/G = Motor/Gear Reducer Configuration (at rated horsepower)

High Speed  
Low Torque



Low Speed  
High Torque

TM113B25 Drum Motor (maching Idler KT113B25\*\*)



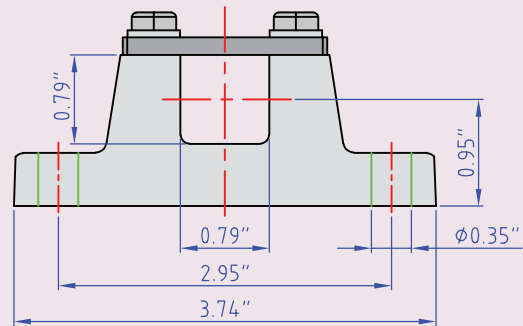
Standard drum motor face widths\* (L) in inches:

10.24	10.83	12.20	14.17	16.14	18.11	20.08	22.05	24.02	25.98
27.95	29.92	31.89	33.86	35.83	37.80	39.76	41.73	43.70	45.67

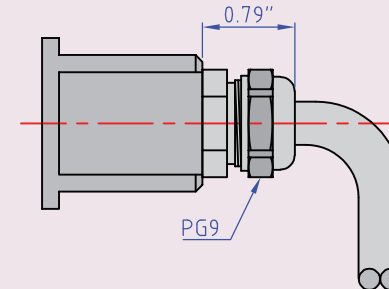
\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

Brackets: 100-AB20



Cable Option:





## TM113B25 Drum Motor

## 0.75 HP

V (ft/min) M/G	1039 2/S2	945 2/S2	756 2/S2	661 2/S2	591 2/S2	520 2/S2	449 2/S2
Belt Pull (lbf)	22	24	31	35	39	45	50
Drum RPM	892	811	649	568	507	446	385

## 0.5 HP

V (ft/min) M/G	1039 2/PL2	945 2/S2	756 2/S2	661 2/S2	591 2/S2
Belt Pull (lbf)	15	17	21	23	26
Drum RPM	892	881	649	568	507

## 0.5 HP

V (ft/min) M/G	520 4/S2	472 4/S2	378 4/S2	331 4/S2	295 4/S2	260 4/S2	224 4/S2	201 4/PL2	177 4/S2	165 4/PL2	154 4/PL2	142 4/S2	130 4/PL2	118 4/PL2	106 4/PL2
Belt Pull (lbf)	30	33	41	47	52	60	69	75	88	91	98	109	116	127	141
Drum RPM	446	406	325	284	254	223	193	172	152	142	132	122	112	101	91

V (ft/min) M/G	94 4/PL2	80 4/PL2	64 4/PL2
Belt Pull (lbf)	161	187	215
Drum RPM	81	69	55

## 0.34 HP

V (ft/min) M/G	1039 2/S2	945 2/S2	756 2/S2	661 2/S2	591 2/S2
Belt Pull (lbf)	10	11	14	16	18
Drum RPM	892	811	649	568	507

## 0.34 HP

V (ft/min) M/G	520 4/S2	472 4/S2	378 4/S2	331 4/S2	295 4/S2	260 4/S2	224 4/S2	201 4/PL2	177 4/PL2	165 4/PL2	154 4/PL2	130 4/PL2	118 4/PL2	106 4/PL2	94 4/PL2
Belt Pull (lbf)	21	22	28	32	36	40	47	50	57	62	66	79	86	95	108
Drum RPM	446	406	325	284	254	223	193	172	152	142	132	112	101	91	81

V (ft/min) M/G	80 4/PL2	64 4/PL2
Belt Pull (lbf)	126	159
Drum RPM	69	55

V = Belt Speed (ft/min)

M/G = Motor/Gear Reducer Configuration (at rated horsepower)

High Speed  
Low Torque

 A horizontal bar with a color gradient from yellow on the left to red on the right. The bar is divided into segments labeled with motor/gear reducer configurations: 2/S2, 4/S2, 6/S2, 2/S3, 4/S3, 6/S3, 2/PL2, 4/PL2, 6/PL2, 2/PL3, 4/PL3, 6/PL3. A yellow arrow points left from the 'High Speed Low Torque' text to the start of the bar, and a red arrow points right from the end of the bar to the 'Low Speed High Torque' text.
Low Speed  
High Torque

## TM113B25 Drum Motor

## 0.34 HP

V (ft/min) M/G	236 6/S2	213 6/S2	189 6/S2	165 6/S2	142 6/S2	118 6/S2	94 6/S2	69 6/PL2	59 6/PL2	50 6/PL2	40 6/PL2
Belt Pull (lbf)	45	50	55	64	74	89	111	149	172	205	215
Drum RPM	203	183	162	142	122	101	81	59	51	43	34

## 0.25 HP

V (ft/min) M/G	378 4/S2	331 4/S2	295 4/S2	260 4/S2	224 4/S2	201 4/PL2	177 4/PL2	165 4/PL2	154 4/PL2	130 4/PL2	118 4/PL2	106 4/PL2	94 4/PL2	80 4/PL2	64 4/PL2
Belt Pull (lbf)	20	22	25	29	34	36	41	44	48	56	62	69	78	91	115
Drum RPM	325	284	254	223	193	172	152	142	132	112	101	91	81	69	55

V (ft/min) M/G	47 4/PL3	43 4/PL3	38 4/PL3	31 4/PL3	26 4/PL3
Belt Pull (lbf)	148	165	185	215	215
Drum RPM	41	37	32	26	22

## 0.25 HP

V (ft/min) M/G	213 6/S2	189 6/S2	165 6/S2	142 6/S2	59 6/PL2	50 6/PL2	40 6/PL2
Belt Pull (lbf)	36	40	46	53	123	148	182
Drum RPM	183	162	142	122	51	43	34

## 0.16 HP

V (ft/min) M/G	260 4/S2	224 4/S2	201 4/PL2	177 4/PL2	165 4/PL2	154 4/PL2	130 4/PL2	118 4/PL2	106 4/PL2	94 4/PL2	80 4/PL2	64 4/PL2	43 4/PL3	26 4/PL3	17 4/PL3
Belt Pull (lbf)	20	22	24	27	30	32	37	41	46	51	61	77	109	180	215
Drum RPM	223	193	172	152	142	132	112	101	91	81	69	55	37	22	14

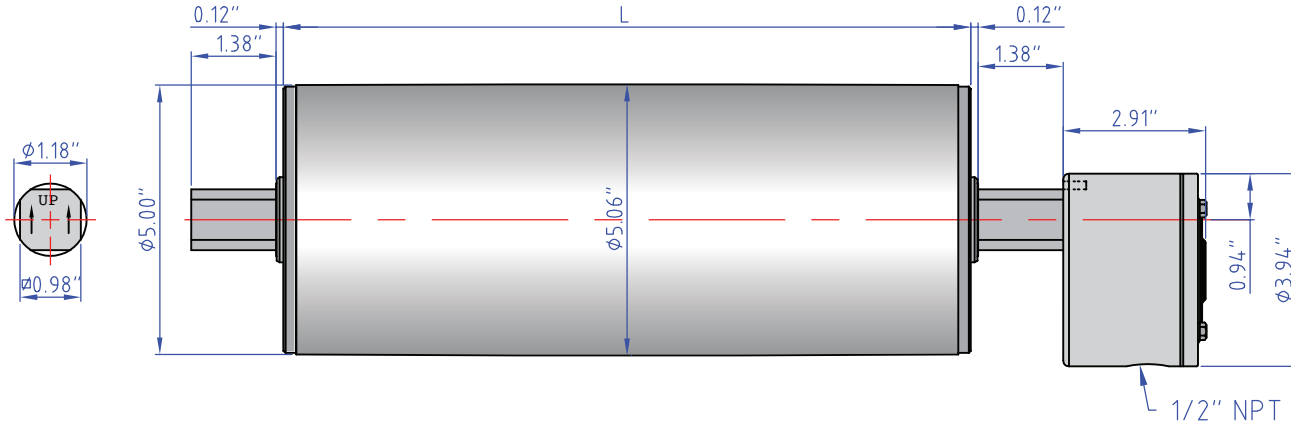
V = Belt Speed (ft/min)

M/G = Motor/Gear Reducer Configuration (at rated horsepower)

High Speed  
Low Torque

Low Speed  
High Torque

TM127B30 Drum Motor (maching Idler KT127B30\*\*)



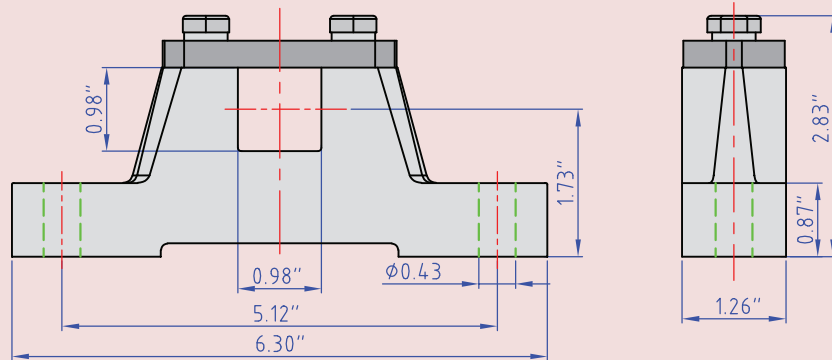
Standard drum motor face widths\* (L) in inches:

10.83	11.81	13.78	15.75	17.72	19.69	21.65	23.62	25.59	27.56
29.53	31.50	33.46	35.43	37.40	39.37	41.34	43.31	45.28	47.24

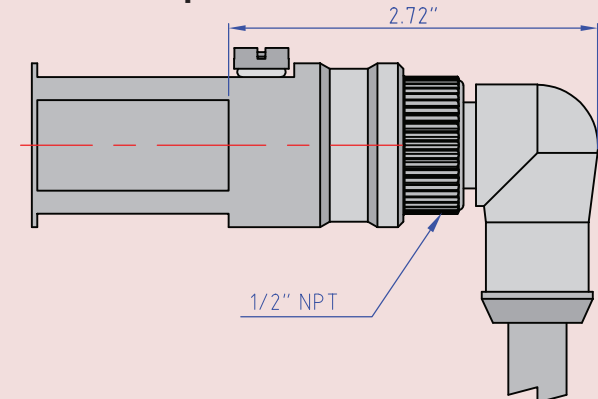
\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

Brackets: 160-A30



PES Cable Option:



## TM127B30 Drum Motor

## 1.5 HP

V (ft/min) M/G	316 4/S2	237 4/S2	201 4/S2	124 4/S2
Belt Pull (lbf)	156	207	244	396
Drum RPM	243	182	155	95

## 1.0 HP

V (ft/min) M/G	646 2/S2	484 2/S2	411 2/S2	316 4/S2	237 4/S2	201 4/S2	147 4/S2	124 4/S2	110 4/S2	73 4/PL2	58 4/PL2	49 4/PL2	38 4/PL2
Belt Pull (lbf)	51	68	80	104	138	163	223	264	298	449	565	669	767
Drum RPM	497	372	316	243	182	155	113	95	85	56	45	38	29

## 0.75 HP

V (ft/min) M/G	651 2/S2	488 2/S2	414 2/S2	328 4/S2	246 4/S2	209 4/S2	152 4/S2	134 4/S3	114 4/S2	97 4/S2	87 6/S2	74 6/S2	62 4/S3	56 4/S3	50 4/PL2
Belt Pull (lbf)	38	50	59	75	100	118	162	183	216	253	282	332	366	408	491
Drum RPM	501	375	318	252	189	161	117	103	88	75	67	57	48	43	38

V (ft/min) M/G 40 4/PL2

Belt Pull (lbf) 617

Drum RPM 31

## 0.5 HP

V (ft/min) M/G	321 4/S2	241 4/S2	205 4/S2	149 4/S2	131 4/S2	98 4/S2	83 4/S2	64 6/S2	54 4/S3	41 4/S3	33 6/PL2	26 6/PL2
Belt Pull (lbf)	51	68	80	110	125	167	197	256	303	400	496	630
Drum RPM	247	185	158	115	101	75	64	49	42	32	25	20

## 0.34 HP

V (ft/min) M/G	322 4/S2	241 4/S2	205 4/S2	149 4/S2	131 4/S2	99 4/S2	84 4/S2	61 4/S3	54 4/S3	41 4/S3
Belt Pull (lbf)	35	46	54	75	85	113	133	183	206	272
Drum RPM	248	185	158	115	101	76	65	47	42	32

## 0.25 HP

V (ft/min) M/G	11.1 4/PL3	8.7 4/PL3	7.3 4/PL3	5.8 4/PL3
Belt Pull (lbf)	738	767	767	767
Drum RPM	8.5	6.7	5.6	4.5

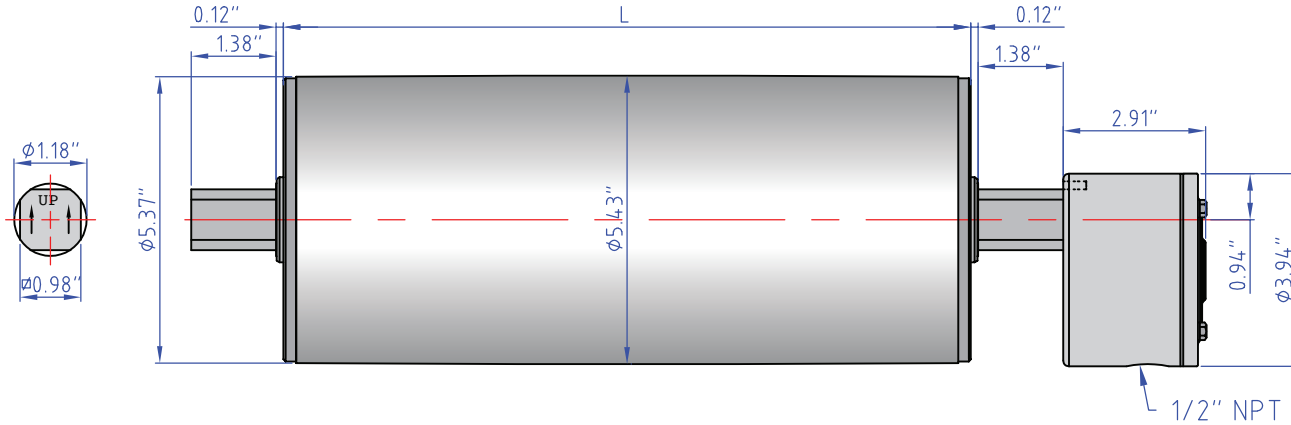
V = Belt Speed (ft/min)

M/G = Motor/Gear Reducer Configuration (at rated horsepower)

High Speed  
Low Torque

Low Speed  
High Torque

TM138B30 Drum Motor (maching Idler KT138B30\*\*)



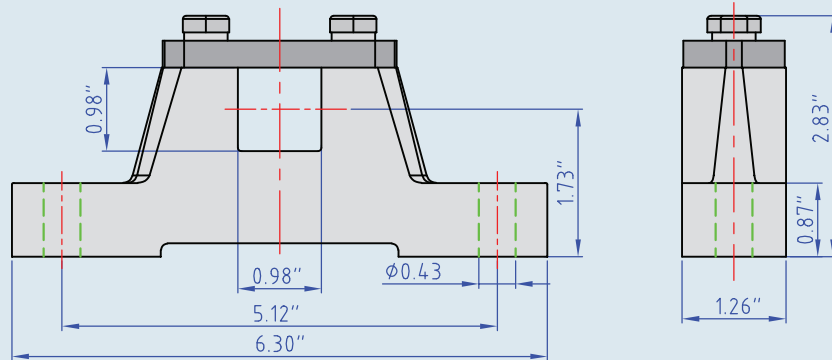
Standard drum motor face widths\* (L) in inches:

10.83	11.81	13.78	15.75	17.72	19.69	21.65	23.62	25.59	27.56
29.53	31.50	33.46	35.43	37.40	39.37	41.34	43.31	45.28	47.24

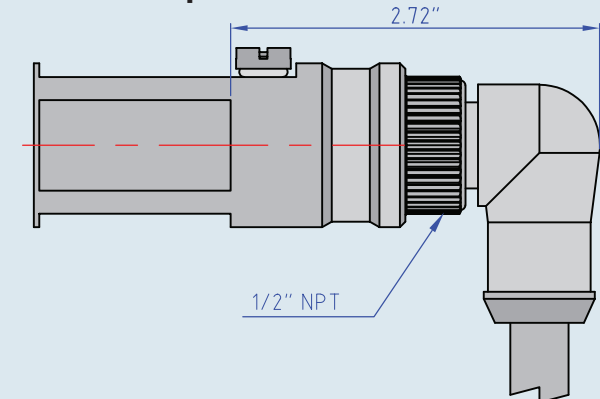
\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

Brackets: 160-A30



PES Cable Option:



## TM138B30 Drum Motor

## 1.5 HP

V (ft/min) M/G	343 4/S2	258 4/S2	218 4/S2	135 4/S2
Belt Pull (lbf)	156	208	246	398
Drum RPM	242	181	154	95

## 1.0 HP

V (ft/min) M/G	702 2/S2	526 2/S2	447 2/S2	343 4/S2	258 4/S2	218 4/S2	160 4/S2	135 4/S2	120 4/S2	79 4/PL2	63 4/PL2	53 4/PL2	41 4/PL2
Belt Pull (lbf)	51	68	80	104	139	164	224	266	299	451	568	672	767
Drum RPM	494	370	315	242	181	154	112	95	84	56	44	37	29

## 0.75 HP

V (ft/min) M/G	707 2/S2	530 2/S2	450 2/S2	356 4/S2	267 4/S2	227 4/S2	165 4/S2	146 4/S3	124 4/S2	105 4/S2	95 6/S2	80 6/S2	67 4/S3	61 4/S3	54 4/PL2
Belt Pull (lbf)	38	50	59	75	100	118	162	183	216	253	282	332	366	408	491
Drum RPM	501	375	318	252	189	161	117	103	88	75	67	57	48	43	38

V (ft/min) M/G 43 4/PL2

Belt Pull (lbf) 617

Drum RPM 31

## 0.5 HP

V (ft/min) M/G	349 4/S2	262 4/S2	223 4/S2	162 4/S2	142 4/S2	106 4/S2	90 4/S2	70 6/S2	59 4/S3	45 4/S3	36 6/PL2	28 6/PL2
Belt Pull (lbf)	51	68	80	111	126	168	198	257	305	402	499	633
Drum RPM	246	184	157	114	100	75	64	49	41	31	25	20

## 0.34 HP

V (ft/min) M/G	350 4/S2	262 4/S2	223 4/S2	162 4/S2	142 4/S2	108 4/S2	91 4/S2	66 4/S3	59 4/S3	45 4/S3
Belt Pull (lbf)	35	46	55	75	85	113	133	184	207	273
Drum RPM	246	184	157	114	100	76	64	47	41	31

## 0.25 HP

V (ft/min) M/G	12 4/PL3	9 4/PL3	8 4/PL3	6 4/PL3
Belt Pull (lbf)	742	767	767	767
Drum RPM	8	7	6	4

V = Belt Speed (ft/min)

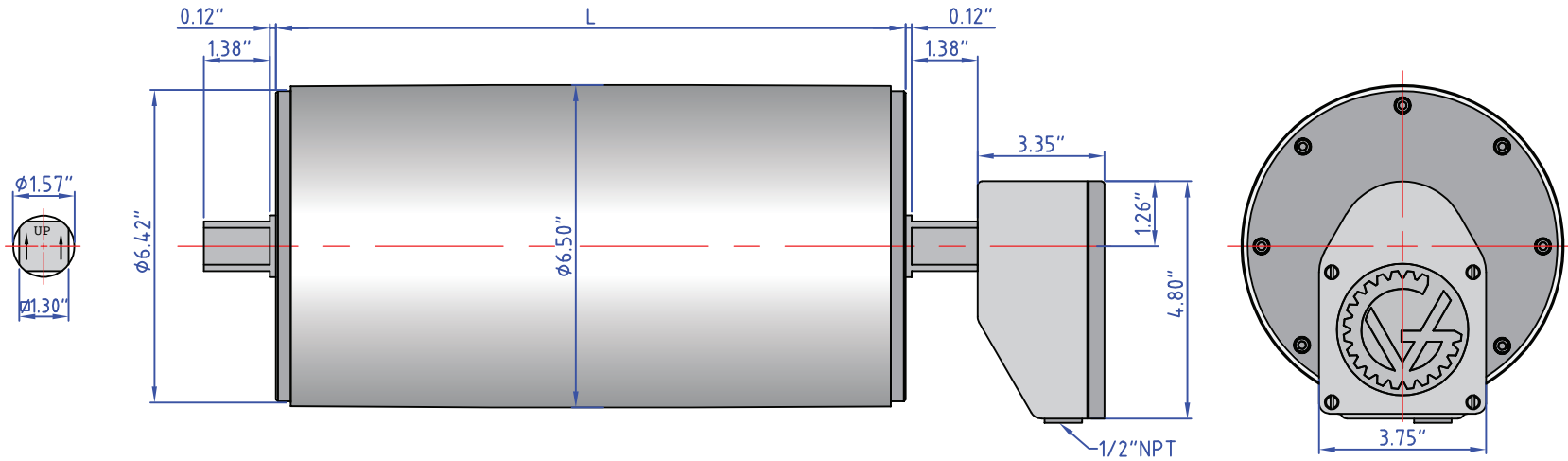
M/G = Motor/Gear Reducer Configuration (at rated horsepower)

High Speed  
Low Torque

2/S2 4/S2 6/S2 2/S3 4/S3 6/S3 2/PL2 4/PL2 6/PL2 2/PL3 4/PL3 6/PL3

Low Speed  
High Torque

TM160B40 Drum Motor (maching Idler KT160B40\*\*)



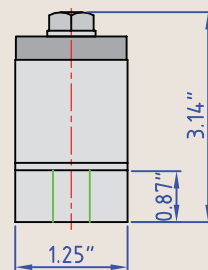
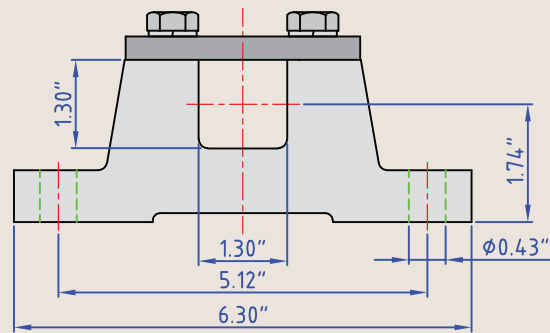
Standard drum motor face widths\* (L) in inches:

15.75	16.73	17.72	19.69	21.65	23.62	25.59	27.56	29.53
31.50	33.46	35.43	37.40	39.37	41.34	43.31	45.28	47.24

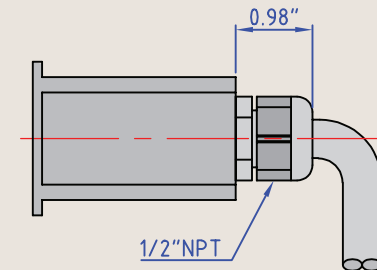
\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

Brackets: 160-AB40



Cable Option:



## TM160B40 Drum Motor

## 3.0 HP

V (ft/min) M/G	272 2/S2	236 2/S2	213 2/S2	201 2/S2	189 2/S2
Belt Pull (lbf)	339	391	434	460	488
Drum RPM	160	139	126	119	111

## 2.0 HP

V (ft/min) M/G	272 2/S2	236 2/S2	213 2/S2	201 2/S2	189 2/S2	165 4/S2	154 4/S2	142 4/S2	130 4/S2	114 2/S3	108 2/PL2	87 2/PL2	74 4/PL2
Belt Pull (lbf)	232	266	296	313	333	381	410	444	484	407	580	650	800
Drum RPM	160	139	125	118	111	97	90	83	76	67	64	50	44

## 1.5 HP

V (ft/min) M/G	165 4/S2	154 4/S2	142 4/S2	130 4/S2	118 2/S2	106 4/S2	94 4/S2
Belt Pull (lbf)	280	290	333	355	391	434	489
Drum RPM	97	90	83	76	69	63	56

## 1.0 HP


V (ft/min) M/G	130 4/S2	118 4/S2	106 4/S2	94 4/S2	80 4/S2	57 4/S3	54 4/PL2
Belt Pull (lbf)	242	266	296	333	392	547	561
Drum RPM	76	69	63	56	47	33	32

## 0.75 HP

V (ft/min) M/G	118 4/S2	106 4/S2	94 4/S2	80 4/S2	73 4/S2	57 4/S3	47 4/S3	43 4/PL2
Belt Pull (lbf)	195	217	244	287	315	407	489	525
Drum RPM	69	63	56	47	43	33	28	25

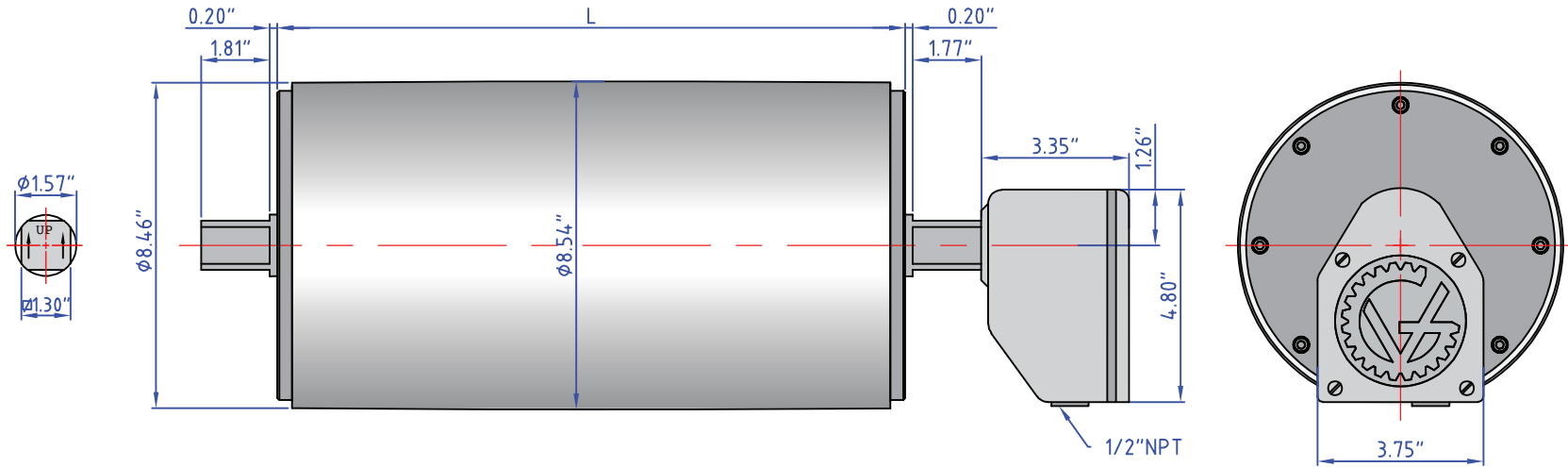
V = Belt Speed (ft/min)

M/G = Motor/Gear Reducer Configuration (at rated horsepower)

High Speed  
Low Torque

Low Speed  
High Torque



TM215B40 Drum Motor (maching Idler KT215B40\*\*)



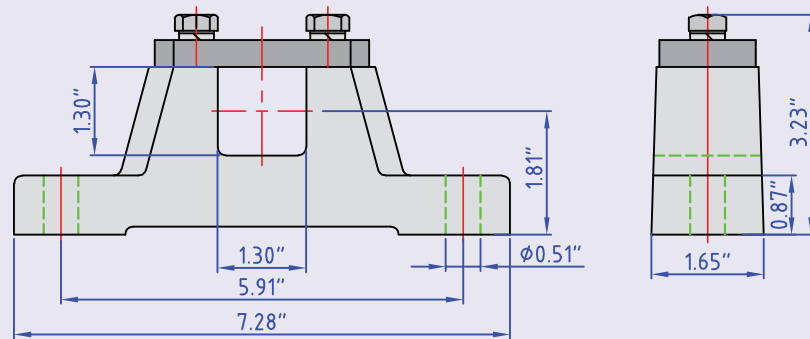
Standard drum motor face widths\* (L) in inches:

19.69	21.65	23.62	25.59	27.56	29.53	31.50	33.46	35.43
37.40	39.37	41.34	43.31	45.28	47.24			

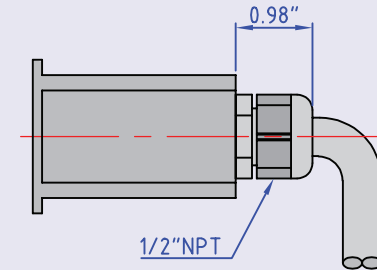
\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

Brackets: 215-AB40



Cable Option:



**TM215B40 Drum Motor**

**7.5 HP**

V (ft/min) M/G	1117 2/S2	912 2/S2	821 2/S2	657 2/S2	583 2/S2	547 2/S3	465 2/S2	403 2/S2	358 2/S2	335 2/S2	310 2/S2	255 2/S2	228 2/S3
Belt Pull (lbf)	198	243	270	337	285	405	476	549	618	662	715	651	972
Drum RPM	504	412	371	297	263	247	210	182	162	151	140	115	103

**5.0 HP**

V (ft/min) M/G	1117 2/S2	912 2/S2	821 2/S2	657 2/S2	583 2/S2	547 2/S3	465 2/S2	403 2/S2	358 2/S2	335 2/S2	310 2/S2	275 4/S3	255 2/S2	238 2/S2	234 4/S2
Belt Pull (lbf)	145	178	198	247	278	297	349	402	453	485	524	521	636	681	613
Drum RPM	503	411	370	296	263	246	209	182	161	151	140	124	115	107	105

V (ft/min) M/G	228 2/S3	221 2/S2	202 4/S3	198 2/S3	162 2/S3	114 4/S3
Belt Pull (lbf)	712	552	709	821	1000	1250
Drum RPM	103	100	91	89	73	51

**3.0 HP**

V (ft/min) M/G	679 4/S2	559 4/S2	483 4/S2	398 4/S2	325 4/S2	293 4/S2	233 4/S2	234 4/S2	208 4/S2	202 4/S2	166 4/S2	155 4/S2	144 4/S2	128 4/S2	119 4/S2
Belt Pull (lbf)	130	158	183	222	272	302	379	377	425	437	533	569	614	692	741
Drum RPM	307	253	218	180	147	132	105	106	94	91	75	70	65	58	54

V (ft/min) M/G	114 4/S3	99 4/S3	81 4/S3	70 4/S3	63 4/S3
Belt Pull (lbf)	774	893	1087	1254	1412
Drum RPM	52	45	37	32	28

**2.0 HP**

V (ft/min) M/G	685 4/S2	564 4/S2	488 4/S2	402 4/S2	376 6/S2	328 4/S2	295 4/S2	236 4/S2	210 4/S2	204 4/S2	197 6/S2	185 4/S2	167 4/S2	157 6/S2	145 4/S2
Belt Pull (lbf)	82	99	115	140	164	171	190	237	267	275	314	304	335	394	386
Drum RPM	309	255	220	181	170	148	133	107	95	92	89	83	76	71	65

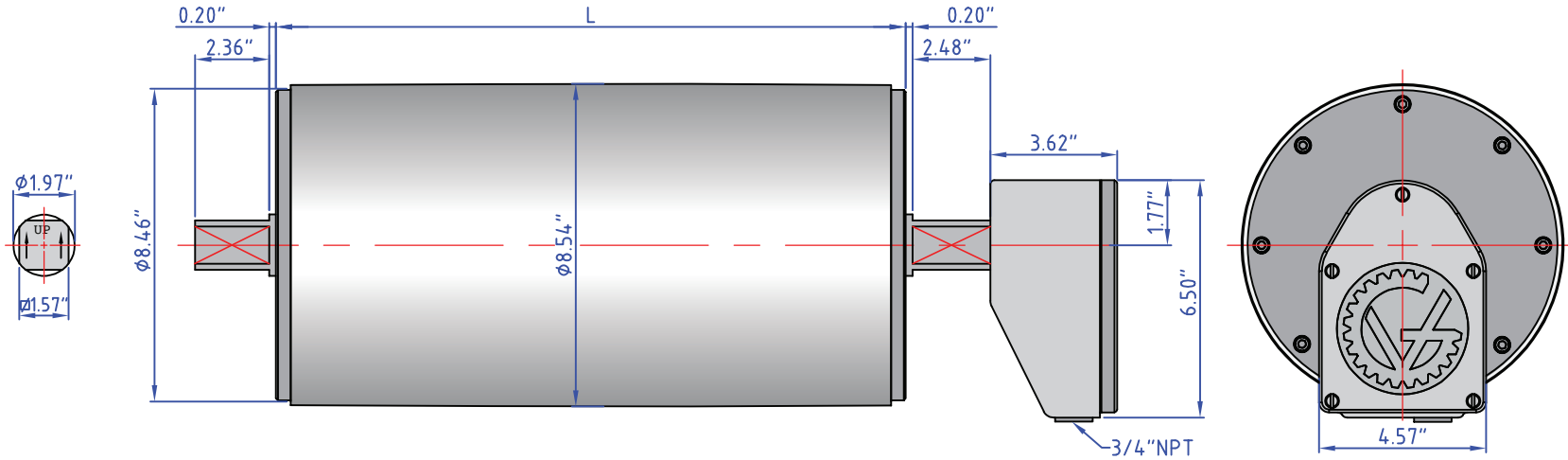
V (ft/min) M/G	136 6/S2	129 4/S2	120 4/S2	111 4/S2	104 6/S2	97 6/S2	86 6/S2	77 6/S3	71 4/S3	67 6/S3	55 6/S3	47 6/S3
Belt Pull (lbf)	455	435	466	503	592	639	719	805	789	928	1131	1304
Drum RPM	61	58	54	50	47	44	39	35	32	30	25	21

V = Belt Speed (ft/min)

M/G = Motor/Gear Reducer Configuration (at rated horsepower)



TM215B50 Drum Motor (maching Idler KT215B50\*\*)



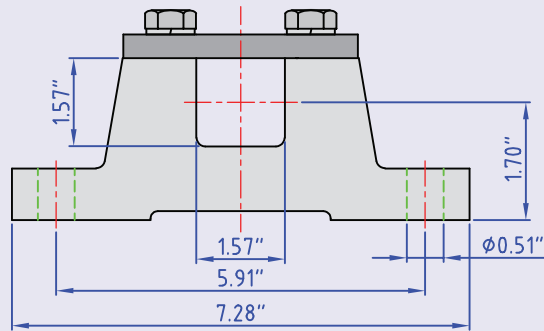
Standard drum motor face widths\* (L) in inches:

19.69	21.65	23.62	25.59	27.56	29.53	31.50	33.46	35.43
37.40	39.37	41.34	43.31	45.28	47.24			

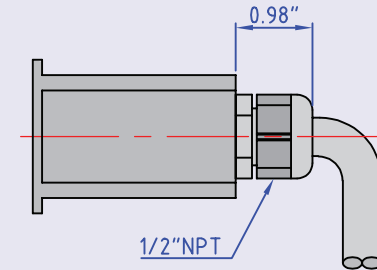
\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

Brackets: 215-AB50



Cable Option:



**TM215B50 Drum Motor**
**7.5 HP**

<b>V (ft/min) M/G</b>	<b>142 2/PL2</b>	<b>129 2/PL2</b>
<b>Belt Pull (lbf)</b>	<b>1559</b>	<b>1714</b>
<b>Drum RPM</b>	<b>64</b>	<b>58</b>

**5.0 HP**

<b>V (ft/min) M/G</b>	<b>142 2/PL2</b>	<b>129 2/PL2</b>	<b>71 4/PL2</b>	<b>65 4/PL2</b>
<b>Belt Pull (lbf)</b>	<b>1275</b>	<b>1403</b>	<b>2317</b>	<b>2531</b>
<b>Drum RPM</b>	<b>64</b>	<b>58</b>	<b>32</b>	<b>29</b>

**3.0 HP**

<b>V (ft/min) M/G</b>	<b>71 4/PL2</b>	<b>65 4/PL2</b>	<b>47 6/PL2</b>	<b>43 6/PL2</b>
<b>Belt Pull (lbf)</b>	<b>1241</b>	<b>1365</b>	<b>1887</b>	<b>2075</b>
<b>Drum RPM</b>	<b>32</b>	<b>29</b>	<b>21</b>	<b>19</b>

**2.0 HP**

<b>V (ft/min) M/G</b>	<b>48 6/PL2</b>	<b>44 6/PL2</b>
<b>Belt Pull (lbf)</b>	<b>1291</b>	<b>1419</b>
<b>Drum RPM</b>	<b>22</b>	<b>20</b>

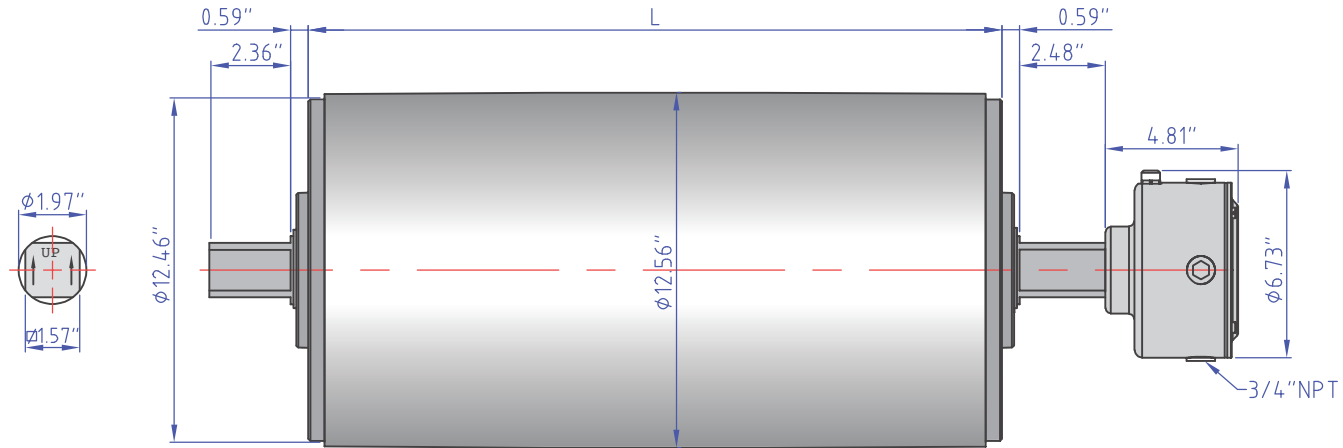
**V = Belt Speed (ft/min)**
**M/G = Motor/Gear Reducer Configuration (at rated horsepower)**

 High Speed  
 Low Torque


 2/S2 4/S2 6/S2 2/S3 4/S3 6/S3 2/PL2 4/PL2 6/PL2 2/PL3 4/PL3 6/PL3

 Low Speed  
 High Torque

TM315B50 Drum Motor (maching Idler KT315B50\*\*)



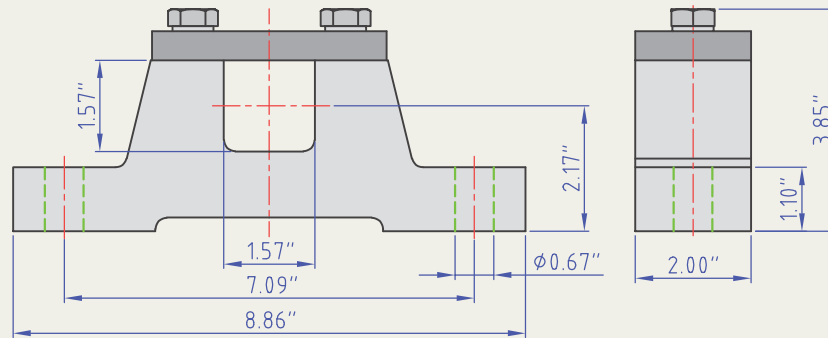
Standard drum motor face widths\* (L) in inches:

21.65	23.62	25.59	27.56	29.53	31.50	33.46	35.43	37.40
39.37	41.34	43.31	45.28	47.24	49.21	51.18	53.15	55.12

\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

Brackets: 315-AB-50



**TM315B50 Drum Motor**

**15.0 HP**

<b>V (ft/min) M/G</b>	<b>661 2/S2</b>	<b>591 2/S2</b>	<b>567 2/S2</b>	<b>520 2/S2</b>	<b>449 2/S2</b>	<b>378 2/S2</b>												
<b>Belt Pull (lbf)</b>	<b>698</b>	<b>782</b>	<b>814</b>	<b>888</b>	<b>1029</b>	<b>1185</b>												
<b>Drum RPM</b>	<b>204</b>	<b>182</b>	<b>175</b>	<b>160</b>	<b>138</b>	<b>116</b>												

**10.0 HP**

<b>V (ft/min) M/G</b>	<b>638 4/S2</b>	<b>567 4/S2</b>	<b>520 4/S2</b>	<b>449 4/S2</b>	<b>402 4/S2</b>	<b>354 4/S2</b>	<b>331 4/S2</b>	<b>295 4/S2</b>	<b>283 4/S2</b>	<b>260 4/S2</b>								
<b>Belt Pull (lbf)</b>	<b>493</b>	<b>555</b>	<b>606</b>	<b>701</b>	<b>784</b>	<b>888</b>	<b>952</b>	<b>1066</b>	<b>1110</b>	<b>1211</b>								
<b>Drum RPM</b>	<b>197</b>	<b>175</b>	<b>160</b>	<b>138</b>	<b>124</b>	<b>109</b>	<b>102</b>	<b>91</b>	<b>87</b>	<b>80</b>								

**7.5 HP**

<b>V (ft/min) M/G</b>	<b>638 4/S2</b>	<b>567 4/S2</b>	<b>520 4/S2</b>	<b>449 4/S2</b>	<b>402 4/S2</b>	<b>354 4/S2</b>	<b>331 4/S2</b>	<b>295 4/S2</b>	<b>268 4/S2</b>	<b>260 4/S2</b>	<b>224 4/S2</b>	<b>189 4/S2</b>						
<b>Belt Pull (lbf)</b>	<b>362</b>	<b>407</b>	<b>444</b>	<b>514</b>	<b>575</b>	<b>651</b>	<b>698</b>	<b>782</b>	<b>814</b>	<b>888</b>	<b>1029</b>	<b>1185</b>						
<b>Drum RPM</b>	<b>197</b>	<b>175</b>	<b>160</b>	<b>138</b>	<b>124</b>	<b>109</b>	<b>102</b>	<b>91</b>	<b>83</b>	<b>80</b>	<b>69</b>	<b>58</b>						

**5.0 HP**

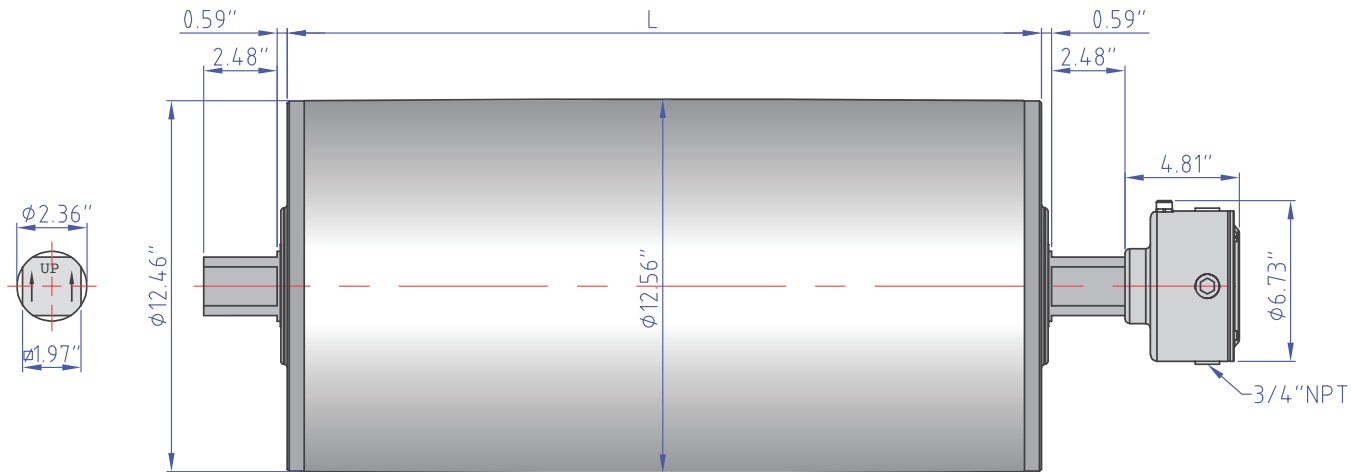
<b>V (ft/min) M/G</b>	<b>638 4/S2</b>	<b>567 4/S2</b>	<b>543 4/S2</b>	<b>449 4/S2</b>	<b>402 4/S2</b>	<b>354 4/S2</b>	<b>331 4/S2</b>	<b>283 4/S2</b>	<b>268 4/S2</b>	<b>213 4/S2</b>	<b>189 4/S2</b>	<b>165 4/S2</b>	<b>154 4/S2</b>	<b>142 4/S2</b>	<b>130 4/S2</b>			
<b>Belt Pull (lbf)</b>	<b>245</b>	<b>276</b>	<b>288</b>	<b>349</b>	<b>390</b>	<b>442</b>	<b>473</b>	<b>552</b>	<b>602</b>	<b>736</b>	<b>790</b>	<b>947</b>	<b>1019</b>	<b>1104</b>	<b>1205</b>			
<b>Drum RPM</b>	<b>197</b>	<b>175</b>	<b>167</b>	<b>138</b>	<b>124</b>	<b>109</b>	<b>102</b>	<b>87</b>	<b>83</b>	<b>66</b>	<b>58</b>	<b>51</b>	<b>47</b>	<b>44</b>	<b>40</b>			

V = Belt Speed (ft/min)

M/G = Motor/Gear Reducer Configuration (at rated horsepower)



**TM315B60 Drum Motor** (maching Idler KT315B60\*\*)



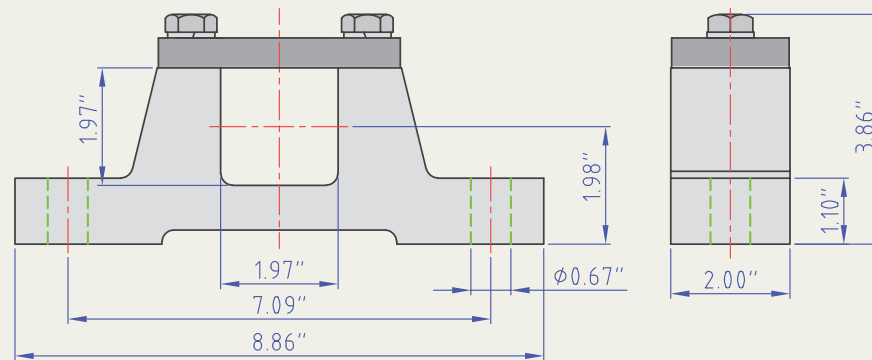
Standard drum motor face widths\* (L) in inches:

21.65	23.62	25.59	27.56	29.53	31.50	33.46	35.43	37.40
39.37	41.34	43.31	45.28	47.24	49.21	51.18	53.15	55.12

\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

**Brackets: 315-AB-60**



**TM315B60 Drum Motor**
**15.0 HP**

<b>V (ft/min) M/G</b>	<b>402 2/S3</b>	<b>335 2/S3</b>	<b>281 2/S3</b>	<b>272 2/S3</b>	<b>236 2/S3</b>	<b>189 2/S3</b>
<b>Belt Pull (lbf)</b>	<b>1095</b>	<b>1309</b>	<b>1560</b>	<b>1626</b>	<b>1866</b>	<b>2312</b>
<b>Drum RPM</b>	<b>124</b>	<b>103</b>	<b>87</b>	<b>84</b>	<b>73</b>	<b>58</b>

**10.0 HP**

<b>V (ft/min) M/G</b>	<b>201 4/S3</b>	<b>170 4/S3</b>	<b>142 4/S3</b>
<b>Belt Pull (lbf)</b>	<b>1470</b>	<b>1760</b>	<b>2100</b>
<b>Drum RPM</b>	<b>62</b>	<b>52</b>	<b>44</b>

**7.5 HP**

<b>V (ft/min) M/G</b>	<b>201 4/S3</b>	<b>168 4/S3</b>	<b>142 4/S3</b>	<b>135 4/S3</b>	<b>118 4/S3</b>	<b>107 4/S3</b>	<b>94 4/S3</b>
<b>Belt Pull (lbf)</b>	<b>1095</b>	<b>1309</b>	<b>1560</b>	<b>1626</b>	<b>1866</b>	<b>2128</b>	<b>2312</b>
<b>Drum RPM</b>	<b>62</b>	<b>52</b>	<b>44</b>	<b>42</b>	<b>36</b>	<b>32</b>	<b>29</b>

**5.0 HP**

<b>V (ft/min) M/G</b>	<b>118 4/S3</b>	<b>107 4/S3</b>	<b>94 4/S3</b>	<b>76 4/S3</b>
<b>Belt Pull (lbf)</b>	<b>1275</b>	<b>1418</b>	<b>1594</b>	<b>1922</b>
<b>Drum RPM</b>	<b>36</b>	<b>32</b>	<b>29</b>	<b>23</b>

**V = Belt Speed (ft/min)**
**M/G = Motor/Gear Reducer Configuration (at rated horsepower)**

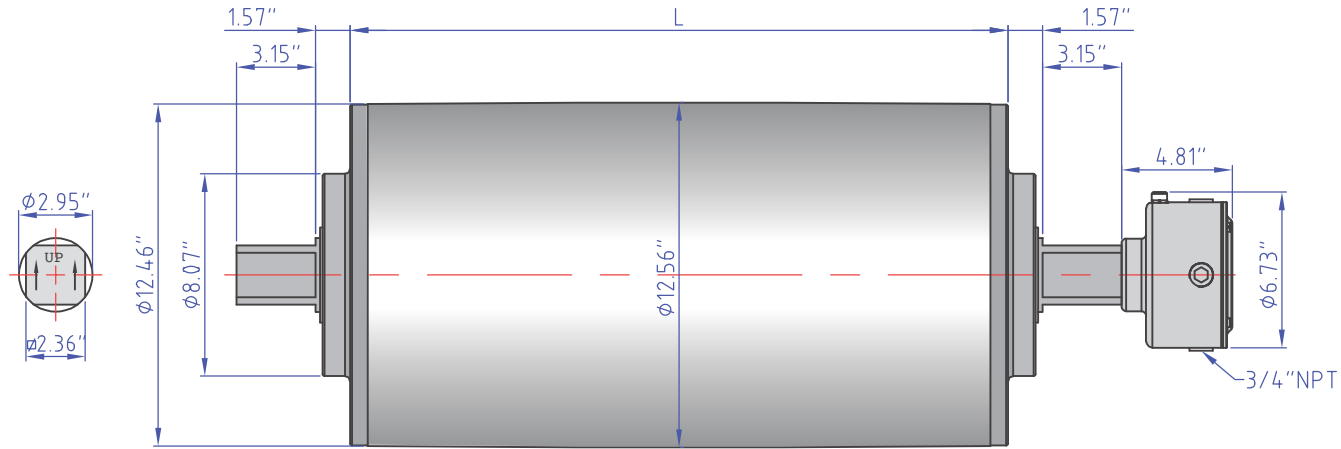
 High Speed  
Low Torque


 2/S2 4/S2 6/S2 2/S3 4/S3 6/S3 2/PL2 4/PL2 6/PL2 2/PL3 4/PL3 6/PL3

 Low Speed  
High Torque



**TM315A75 Drum Motor** (maching Idler KT315A75\*\*)



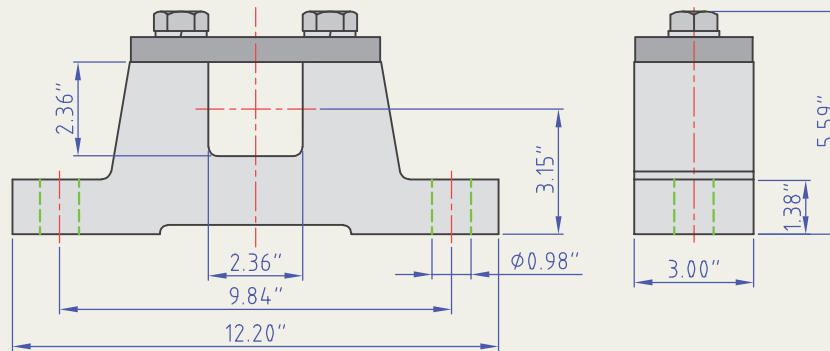
Standard drum motor face widths\* (L) in inches:

- 33.46 35.43 37.40 39.37 41.34 43.31 45.28 47.24 49.21 51.18 53.15 55.12

\*Some face widths are not available in all horsepower. For minimum available face widths refer to page 25.

\*\*Idler dimensions are identical to the drum motor with no junction box.

**Brackets: 500-AB-75**



**TM315A75 Drum Motor**

**15.0 HP**

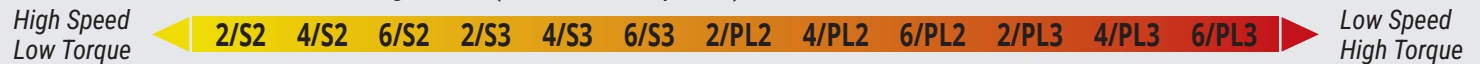
<b>V (ft/min) M/G</b>	<b>100 2/PL3</b>	<b>80 2/PL3</b>
<b>Belt Pull (lbf)</b>	<b>4500</b>	<b>5700</b>
<b>Drum RPM</b>	<b>31</b>	<b>25</b>

**10.0 HP**

<b>V (ft/min) M/G</b>	<b>50 4/PL3</b>	<b>40 4/PL3</b>	<b>30 4/PL3</b>
<b>Belt Pull (lbf)</b>	<b>6087</b>	<b>7600</b>	<b>11000</b>
<b>Drum RPM</b>	<b>15</b>	<b>12</b>	<b>9</b>

**V** = Belt Speed (ft/min)

**M/G** = Motor/Gear Reducer Configuration (at rated horsepower)



TM100B25													
HP	0.25			0.16						0.14			
Motor/Gear Reducer	4/S2	4/PL2	4/PL3	4/S2	4/PL2	4/PL3	6/S2	6/PL2	6/PL3	4/S2	4/PL2	4/PL3	
Min. Face Width (L)	12.20	12.20	14.17	12.20	12.20	14.17	12.20	12.20	14.17	10.24	10.24	12.20	

TM113B25													
HP	0.75	0.5			0.34					0.25			
Motor/Gear Reducer	2/S2	2/S2	4/S2	4/PL2	2/S2	4/S2	4/PL2	6/S2	6/PL2	4/S2	4/PL2	4/PL3	
Min. Face Width (L)	12.20	12.20	14.17	14.17	10.24	12.20	12.20	14.17	14.17	12.20	12.20	14.17	



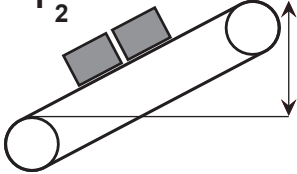
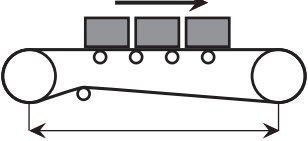
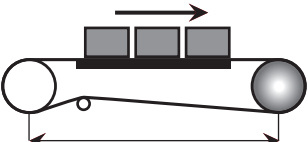
TM127B30 / TM138B30																	
HP	1.5	1.0			0.75					0.5				0.34		0.25	
Motor/Gear Reducer	4/S2	2/S2	4/S2	4/PL2	2/S2	6/S2	4/S2	4/S3	4/PL2	6/S2	4/S2	4/S3	4/PL2	6/PL2	4/S2	4/S3	4/PL3
Min. Face Width (L)	14.76	13.78	13.78	15.75	12.80	13.78	12.80	13.78	14.76	12.80	12.80	13.78	14.76	14.76	11.81	12.80	15.75

TM160B40													
HP	3.0	2.0				1.5	1.0			0.75			
Motor/Gear Reducer	2/S2	2/S2	4/S2	2/PL2	4/PL2	4/S2	4/S2	4/S3	4/PL2	4/S2	4/S3	4/PL2	
Min. Face Width (L)	16.73	15.75	17.72	17.72	17.72	15.75	15.75	16.73	17.72	15.75	16.73	17.72	

TM215B40 / TM215B50																		
HP	7.5			5.0						3.0				2.0				
Motor/Gear Reducer	2/S2	2/S3	2/PL2	2/S2	2/S3	2/PL2	4/S2	4/S3	4/PL2	4/S2	4/S3	4/PL2	6/PL2	4/S2	6/S2	4/S3	6/S3	6/PL2
Min. Face Width (L)	21.65	23.62	23.62	21.65	23.62	23.62	21.65	23.62	23.62	19.69	21.65	23.62	23.62	19.69	21.65	21.65	23.62	23.62

TM315B50 / TM315B60 / TM315A75													
HP	15			10			7.5		5.0				
Motor/Gear Reducer	2/S2	2/S3	2/PL3	4/S2	4/S3	4/PL3	4/S2	4/S3	4/S2	4/S3			
Min. Face Width (L)	25.59	29.53	33.46	25.59	29.53	33.46	23.62	27.56	21.65	25.59			

# BELT PULL CALCULATION

<b>CONVEYING SYSTEM</b>	$F_0$  Force without Load	$F_1$  Force to Convey Materials Horizontally	$F_2$  Force to Convey Materials on Incline	<p style="text-align: center;"><b>BELT PULL (BP)</b>  <math>BP = (F_0 + F_1 + F_2)</math></p> <p><b>F</b> = Force (lbs.)  <b>P</b> = Belt weight (lbs./linear ft.)  <b>Q</b> = Weight of rotating parts in pounds per foot of length of belt conveyor  <b>R</b> = Weight in pounds of conveyor product per foot of belt conveyor length  <b>C</b> = Co-efficient of friction between conveyor belt and top slider bed  <b>L</b> = Center to center length (feet)  <b>H</b> = Height (feet)</p>
<b>Roller Bed Conveyor</b> $R$ 	$F_0 = 0.04 (2P + Q) L$	$F_1 = 0.04 \times R \times L$	$F_2 = R \times H$	
<b>Slider Bed Conveyor</b> $R$ 	$F_0 = 1.1 \times P \times L \times C$	$F_1 = 1.1 \times R \times L \times C$	$F_2 = R \times H$	

Calculations:

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Canada



USA



Netherlands

VDG (Van der Graaf) has provided conveyor drive solutions to the material handling and processing industries for over half a century. VDG continues as the leader in the design and manufacturing of drum motors by consistently investing in research and development and utilizing cutting-edge production technology and automation. With in-house precision manufacturing, VDG ensures product quality, fast delivery, and superior customer support.

VDG adheres to high quality standards and a simple principle: design a superior product to meet customer needs in a changing marketplace.

