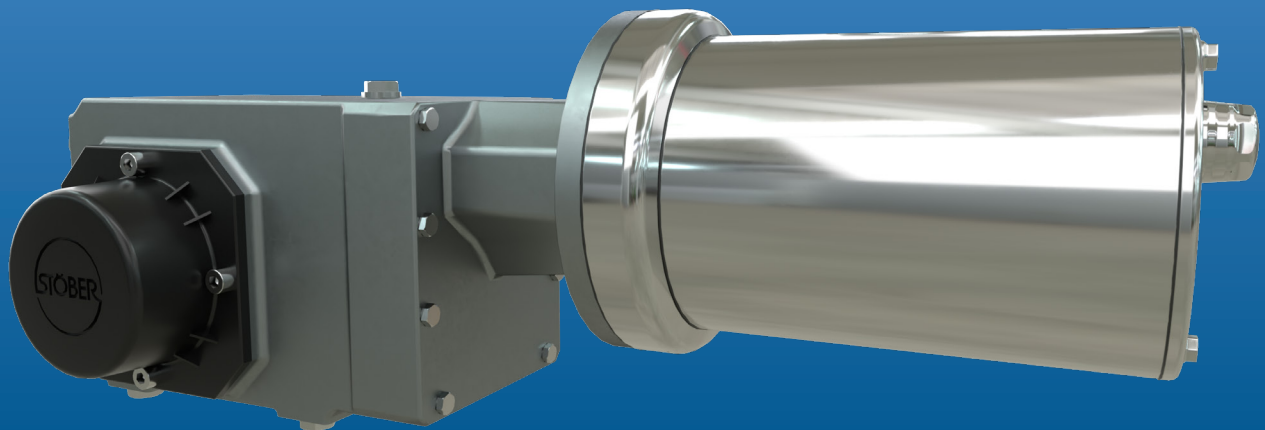


# **cLEAN MOTOR**



*Geared to a  
higher standard™*

# The cLEAN System

Geared to a higher standard™

## The World's Toughest System

STOBER has been innovating and optimizing gearbox solutions for the food and beverage industry since 1997. Designed with decades of knowledge and experience, STOBER's new cLEAN system was created to provide a durable system that improves your plant's reliability.

The STOBER cLEAN System features our KSS stainless steel gearbox, cLEAN Motor, cLEAN Drive, and cLEAN Cable. Not only can it withstand the harshest washdowns, it's highly efficient, easy to install, and everything is backed with a 3 year warranty.



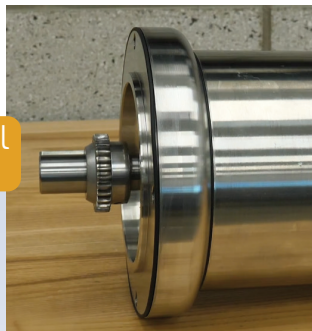
### How We Stop Ingress:

- Zero weep holes
- Double seals on motor covers and all connection points
- O-ring and gland in the cable connection
- Designed to EHEDG Standards and is P69K Certified



No More Water Ingress

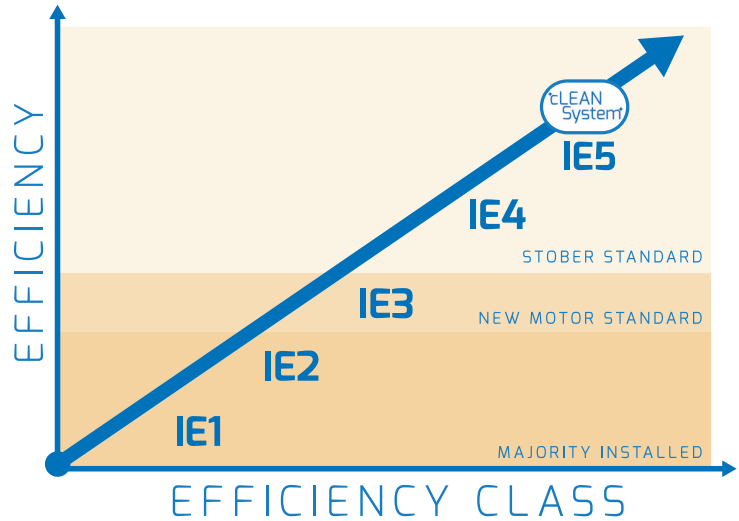
Weep holes on typical NEMA Motor



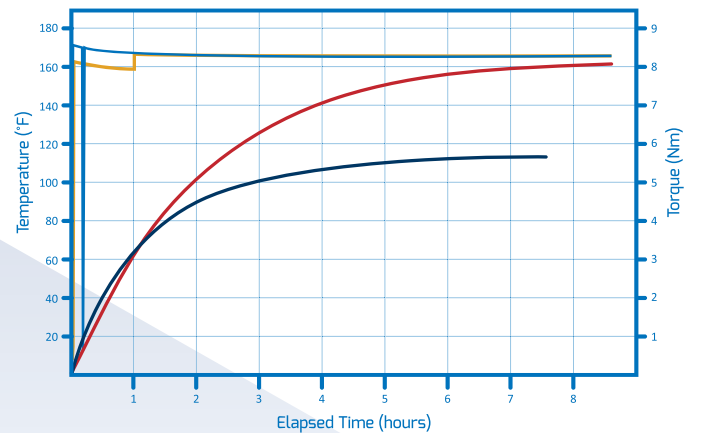
No weep holes on the cLEAN Motor



## The Ultimate Energy Efficiency to Future-Proof Your Production – IE5



## RUNS COOLER - OPERATES 86°F COOLER



STOBER 2HP cLEAN MOTOR  
 — Motor Top Average  
 — Output Torque

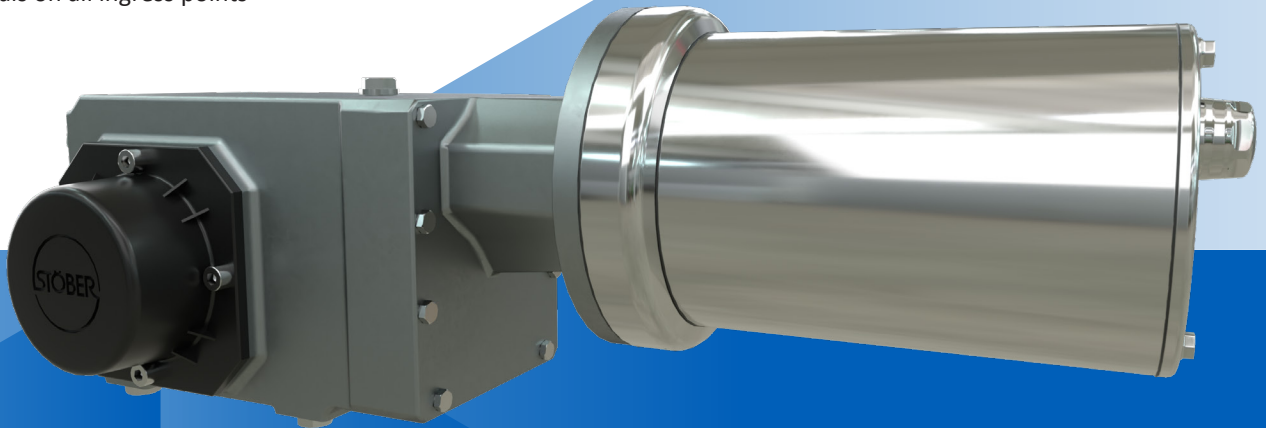
COMPETITION  
 — Motor Top Average  
 — Output Torque

## cLEAN System: GEARBOX & MOTOR

### Features

- All stainless steel hardware
- Output bore diameters up to 1-1/2"
- Gearbox Housing style options: feet, flange, torque arm bracket, or tapped holes
- High frequency injection technology
- Speeds from 0 - 3000 RPM
- IE5 Efficiency
- Double seals on all ingress points

*The KSS and cLEAN Motor are both IP68 and IP69K Certified, capable of handling the harshest washdowns. They are totally enclosed preventing water ingress and eliminating premature failure.*



### Benefits

- 3 year warranty
- Compact - 1/3 smaller than competitor motors
- Runs cooler - 86°F cooler than competitor motors
- No maintenance - totally enclosed with no breather to prevent contaminants in or oil out
- Lubricated for life with Mobil SHC CIBUS 220 food grade oil
- No harborage point for bacteria
- Simple motor mounting and removal with Bowex coupling system
- Energy savings - up to 90% efficiency
- IP68 and IP69K Certified to prevent water and dust ingress
- Designed to EHEDG Standards
- Assembled in USA
- 1 week lead time

# Overview

## IP68 and IP69K CERTIFIED



### Ordering Options At-a-Glance

Use the appropriate order codes below to build a part number for the complete assembly.

Part Number Example: **1** **2** **3** **4** **5** **6** **7** **8** **9** **0\***  
**KSS** **1** **0** **2** **W** **G** **0040** **MS1R** **050** **E1256**

Design Option	Part Number Code	Description
<b>1</b> Series	<b>KSS</b>	Stainless steel housing; right angle helical/bevel
<b>2</b> Size	<b>1 2 3 4</b>	4 sizes of speed reducers
<b>3</b> Generation	<b>0</b>	Version of speed reducers
<b>4</b> # of Stages	<b>2 3</b>	Two stage or three stage
<b>5</b> Output	<b>A</b>	Hollow bore output
	<b>V</b>	Solid shaft output (specify side 3, 4 or double sided)
	<b>W</b>	Double wobble-free bushing
<b>6</b> Housing	<b>F</b>	Round output flange (specify side 3 or 4)
	<b>G</b>	Pilot Circle Diameter (PCD) tapped holes
	<b>GD</b>	Torque arm bracket
	<b>NG</b>	Foot mounting (specify side 1 or 5)
<b>7</b> Ratio	<b>0040</b>	Ratios range from 4:1 to 272:1 (refer to Selection Data tables)
<b>8</b> Motor Adapter	<b>MS1R</b>	For KSS1
	<b>MS2R</b>	For KSS2
	<b>MS3R</b>	For KSS3
	<b>MS4R</b>	For KSS4
<b>9</b> NEMA Frame Size	<b>050</b>	56C
	<b>140</b>	143/145TC
	<b>180</b>	182/184TC
<b>0</b> Mounting Position*	<b>E1256</b> <b>E34</b>	Mounting positions for 3 year warranty

Refer to page 52 illustrations

\*Note: Mounting position is added to "notes" section of order.

Part Number Example: **1** **2** **3** **4** **5** **6** **7** **8** **9**  
**CLM** **5** **0** **3** **U** **S** **HF** **O** **201**

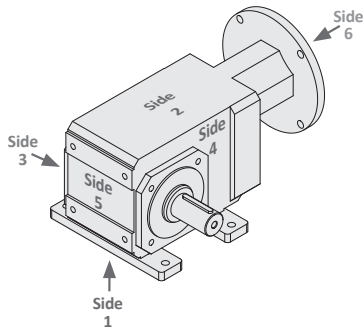
Design Option	Part Number Code	Description
<b>1</b> Series	<b>CLM</b>	cLEAN motor - all stainless steel
<b>2</b> Size	<b>5</b>	1 size
<b>3</b> Generation	<b>0</b>	Version of motor
<b>4</b> Length	<b>2 3</b>	Number of motor magnet stacks (2 is 1HP, 3 is 2HP)
<b>5</b> Cooling	<b>U</b>	Convection cooling
<b>6</b> Housing	<b>S</b>	Standard
<b>7</b> Drive Controller	<b>HF</b>	Delta MH300
<b>8</b> Brake	<b>O</b>	Without holding brake
<b>9</b> Voltage Constant	<b>201</b>	201 V/1000 rpm

\*Note: .

CLEAN System

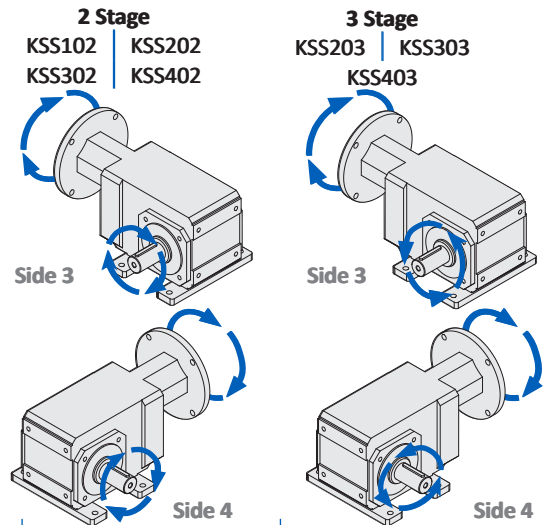
# cLEAN System: GEARBOX & MOTOR

## KSS Series Orientation



## KSS Series Direction of Rotation

Output available on side 3, 4 or both. Note: With a double output, the shaft rotation of Side 3 will be the OPPOSITE direction of Side 4 when viewed from Side 5.



## KSS Series Output Options

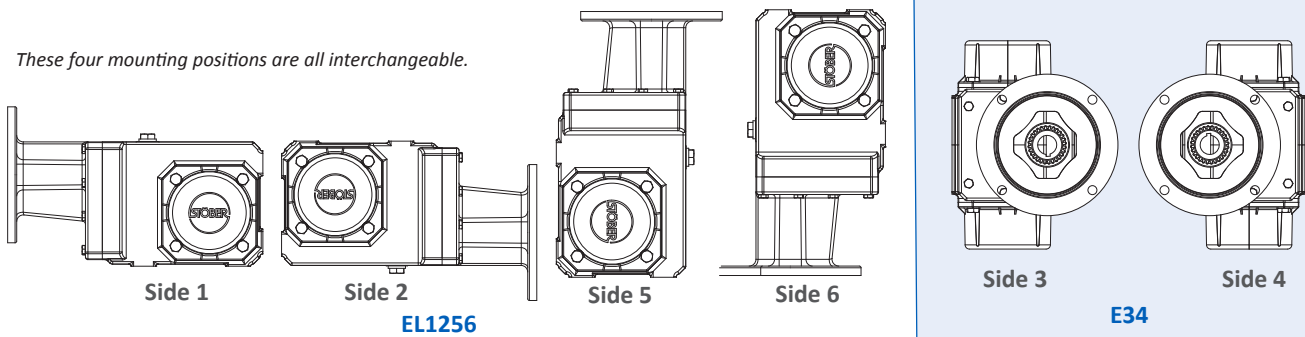
**BLUE:** standard output diameters in stock  
**BLACK:** optional diameters in stock

All Outputs Stainless Steel (Inches)		KSS1	KSS2	KSS3	KSS4
"V" Solid Shaft	Inches	1	1-1/4	1-1/4	1-3/8
"A" Hollow Bore	Inches	1	1-1/4	1-3/8	1-1/2
"W" Wobble Free Bushing	Inches	1	1 1-3/16 1-1/4 1-3/8 1-7/16 1-1/2	1 1-3/16 1-1/4 1-3/8 1-7/16 1-1/2	1-3/16 1-1/4 1-3/8 1-7/16 1-1/2
	Metric	25	30 35	30 35	40

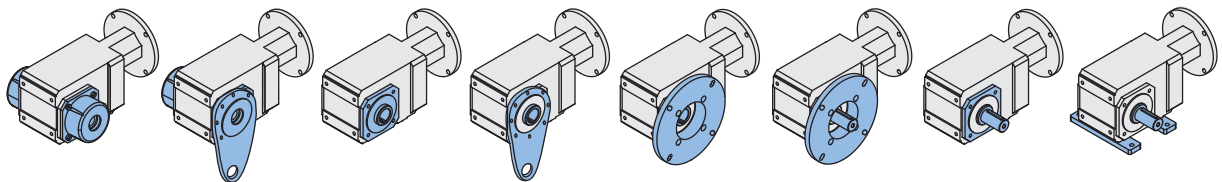
## KSS Mounting Position Options

When ordering any KSS unit, the mounting position must be specified. Use one of the mounting position order codes illustrated below that corresponds to the intended application. KSS units are equipped with specialized seals, higher oil level, and additional features that enables all horizontal output positions to be used interchangeably.

These four mounting positions are all interchangeable.



## Output and Housing Configurations



See Page	page 60	page 61	page 62	page 63	page 64	page 65	page 66	page 67
Output	W Double Bushing	W Double Bushing	A Hollow Bore	A Hollow Bore	A Hollow Bore	V Solid Shaft	V Solid Shaft	V Solid Shaft
Housing	G Tapped Holes	GD Torque Arm Bracket	G Tapped Holes	GD Torque Arm Bracket	F Round Flange	F Round Flange	G Tapped Holes	NG Foot Mount



## cLEAN Sizing/Selection:

1. Find the **RPM Output (Approximate)** nearest to the application requirement. (If the exact Output RPM is required, divide the Input RPM [1800] by the value listed in the Nominal Ratio column.)
- 2a. In the **Input HP** column, locate the rating that is greater than or equal to the required HP, or;
- 2b. If selection is based on Torque instead of HP, find an **Output Torque** that is equal to or greater than required.
3. Confirm that the **Overhung Load** is acceptable for the application.

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
<b>1 HP Motor, 13 - 39 RPM Output (Approximate), 1800 RPM Input</b>							
KSS403_1340 MS4R050 CLM502U	56C	230	13	134.399	4,538	2,518	1.1
		460					
KSS403_1070 MS4R050 CLM502U	56C	230	17	107.381	3,625	2,518	1.3
		460					
KSS303_0900 MS3R050 CLM502U	56C	230	20	90.061	3,041	1,574	1.0
		460					
KSS303_0780 MS3R050 CLM502U	56C	230	23	78.41	2,647	1,503	1.2
		460					
KSS403_0780 MS4R050 CLM502U	56C	230	23	78.095	2,637	2,402	1.8
		460					
KSS303_0670 MS3R050 CLM502U	56C	230	27	66.868	2,258	1,425	1.4
		460					
KSS303_0650 MS3R050 CLM502U	56C	230	27	65.499	2,211	1,416	1.4
		460					
KSS302_0560 MS3R050 CLM502U	56C	230	32	55.705	1,908	1,341	1.2
		460					
KSS402_0560 MS4R050 CLM502U	56C	230	32	55.705	1,908	2,146	2.0
		460					
KSS203_0540 MS2R050 CLM502U	56C	230	33	54.25	1,832	1,139	1.0
		460					
KSS303_0540 MS3R050 CLM502U	56C	230	33	53.883	1,819	1,326	1.7
		460					
KSS403_0540 MS4R050 CLM502U	56C	230	34	53.69	1,813	2,120	2.7
		460					
KSS203_0500 MS2R050 CLM502U	56C	230	36	49.759	1,680	1,107	1.1
		460					
KSS303_0490 MS3R050 CLM502U	56C	230	37	48.631	1,642	1,282	1.9
		460					
KSS403_0490 MS4R050 CLM502U	56C	230	37	48.944	1,652	2,055	2.9
		460					
KSS402_0460 MS4R050 CLM502U	56C	230	39	46.308	1,586	2,018	3.0
		460					

# cLEAN System: GEARBOX & MOTOR

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
<b>1 HP Motor, 13 - 39 RPM Output (Approximate), 1800 RPM Input Continued</b>							
KSS202_0460 MS2R050 CLM502U	56C	230	39	46.225	1,583	1,080	1.1
		460					
KSS302_0460 MS3R050 CLM502U	56C	230	39	46.225	1,583	1,260	1.9
		460					

## 1 HP Motor, 40 - 60 RPM Output (Approximate), 1800 RPM Input

KSS303_0450 MS3R050 CLM502U	56C	230	40	44.892	1,516	1,248	2.0
		460					
KSS403_0450 MS4R050 CLM502U	56C	230	40	44.536	1,504	1,992	3.2
		460					
KSS302_0410 MS3R050 CLM502U	56C	230	44	40.512	1,388	1,206	1.2
		460					
KSS402_0410 MS4R050 CLM502U	56C	230	44	40.512	1,388	1,930	2.0
		460					
KSS203_0390 MS2R050 CLM502U	56C	230	46	39.454	1,332	1,025	1.3
		460					
KSS303_0390 MS3R050 CLM502U	56C	230	46	39.187	1,323	1,193	2.3
		460					
KSS403_0390 MS4R050 CLM502U	56C	230	46	39.047	1,318	1,906	3.7
		460					
KSS402_0350 MS4R050 CLM502U	56C	230	52	34.758	1,191	1,834	4.1
		460					
KSS302_0350 MS3R050 CLM502U	56C	230	52	34.731	1,190	1,146	2.6
		460					
KSS202_0350 MS2R050 CLM502U	56C	230	52	34.554	1,184	980	1.5
		460					
KSS402_0340 MS4R050 CLM502U	56C	230	53	33.678	1,154	1,814	3.0
		460					
KSS202_0340 MS2R050 CLM502U	56C	230	54	33.618	1,152	971	1.2
		460					
KSS302_0340 MS3R050 CLM502U	56C	230	54	33.618	1,152	1,133	1.9
		460					
KSS303_0330 MS3R050 CLM502U	56C	230	55	32.649	1,102	1,122	2.8
		460					
KSS403_0320 MS4R050 CLM502U	56C	230	56	32.39	1,094	1,791	3.7
		460					
KSS403_0490 MS4R050 CLM502U	56C	460	61	48.944	990	1,733	4.9

# Selection Data

## IP68 and IP69K CERTIFIED



CLEAN System

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
-------------------	---	---------	------------	-------	------------------------	-----------	----------------

### 1 HP Motor, 65 RPM Output (Approximate), 1800 RPM Input

KSS102_0280 MS1R050 CLM502U	56C	230	64	28.048	961	762	1.1
		460					
KSS202_0280 MS2R050 CLM502U	56C	230	64	27.95	957	913	1.8
		460					
KSS302_0280 MS3R050 CLM502U	56C	230	65	27.883	955	1,065	3.2
		460					
KSS402_0280 MS4R050 CLM502U	56C	230	65	27.771	951	1,701	5.1
		460					

### 1 HP Motor, 70 - 80 RPM Output (Approximate), 1800 RPM Input

KSS402_0250 MS4R050 CLM502U	56C	230	71	25.279	866	1,649	5.1
		460					
KSS302_0250 MS3R050 CLM502U	56C	230	71	25.259	865	1,030	3.5
		460					
KSS102_0250 MS1R050 CLM502U	56C	230	71	25.22	864	736	1.0
		460					
KSS202_0250 MS2R050 CLM502U	56C	230	72	25.13	861	882	2.1
		460					
KSS302_0230 MS3R050 CLM502U	56C	230	77	23.292	798	1,003	3.9
		460					
KSS102_0230 MS1R050 CLM502U	56C	230	77	23.265	797	716	1.3
		460					

### 1 HP Motor, 90 RPM Output (Approximate), 1800 RPM Input

KSS202_0200 MS2R050 CLM502U	56C	230	89	20.327	696	821	2.5
		460					
KSS302_0200 MS3R050 CLM502U	56C	230	89	20.278	695	958	4.5
		460					
KSS402_0200 MS4R050 CLM502U	56C	230	89	20.197	692	1,530	6.7
		460					
KSS102_0200 MS1R050 CLM502U	56C	230	89	20.15	690	683	1.4
		460					

### 1 HP Motor, 100 - 110 RPM Output (Approximate), 1800 RPM Input

KSS202_0175 MS2R050 CLM502U	56C	230	103	17.469	598	781	2.8
		460					
KSS402_0175 MS4R050 CLM502U	56C	230	103	17.405	596	1,456	7.4
		460					
KSS302_0175 MS3R050 CLM502U	56C	230	104	17.293	592	908	5.0
		460					



# cLEAN System: GEARBOX & MOTOR

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
-------------------	---	---------	------------	-------	------------------------	-----------	----------------

## 1 HP Motor, 100 - 110 RPM Output (Approximate), 1800 RPM Input Continued

KSS302_0170 MS3R050 CLM502U	56C	230	106	16.939	580	902	5.0
		460					
KSS102_0165 MS1R050 CLM502U	56C	230	108	16.714	573	641	1.6
		460					

## 1 HP Motor, 130 RPM Output (Approximate), 1800 RPM Input

KSS102_0140 MS1R050 CLM502U	56C	230	128	14.114	483	606	1.8
		460					
KSS302_0140 MS3R050 CLM502U	56C	230	129	13.935	477	845	5.7
		460					
KSS402_0140 MS4R050 CLM502U	56C	230	130	13.885	476	1,350	8.6
		460					
KSS202_0140 MS2R050 CLM502U	56C	230	130	13.851	474	723	3.3
		460					

## 1 HP Motor, 140 RPM Output (Approximate), 1800 RPM Input

KSS202_0125 MS2R050 CLM502U	56C	230	142	12.705	435	702	3.5
		460					
KSS402_0125 MS4R050 CLM502U	56C	230	142	12.658	434	1,309	9.2
		460					
KSS302_0125 MS3R050 CLM502U	56C	230	143	12.577	431	817	6.1
		460					

## 1 HP Motor, 155 RPM Output (Approximate), 1800 RPM Input

KSS302_0115 MS3R050 CLM502U	56C	230	155	11.61	398	795	6.5
		460					
KSS202_0115 MS2R050 CLM502U	56C	230	156	11.546	396	680	3.7
		460					
KSS402_0115 MS4R050 CLM502U	56C	230	156	11.518	395	1,269	9.4
		460					

## 1 HP Motor, 180 RPM Output (Approximate), 1800 RPM Input

KSS102_0100 MS1R050 CLM502U	56C	230	178	10.14	347	543	2.3
		460					
KSS302_0100 MS3R050 CLM502U	56C	230	178	10.135	347	760	7.1
		460					
KSS402_0100 MS4R050 CLM502U	56C	230	178	10.098	346	1,214	10.7
		460					
KSS202_0100 MS2R050 CLM502U	56C	230	179	10.073	345	650	4.1
		460					

# Selection Data

# IP68 and IP69K CERTIFIED



CLEAN System

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
<b>1 HP Motor, 195 RPM Output (Approximate), 1800 RPM Input</b>							
KSS102_0092 MS1R050 CLM502U	56C	230	195	9.249	317	527	2.4
		460					
<b>1 HP Motor, 215 RPM Output (Approximate), 1800 RPM Input</b>							
KSS302_0084 MS3R050 CLM502U	56C	230	213	8.444	289	715	8.0
		460					
KSS202_0084 MS2R050 CLM502U	56C	230	214	8.397	288	612	4.6
		460					
KSS402_0084 MS4R050 CLM502U	56C	230	215	8.377	287	1,141	12.1
		460					
<b>1 HP Motor, 245 - 275 RPM Output (Approximate), 1800 RPM Input</b>							
KSS302_0074 MS3R050 CLM502U	56C	230	244	7.391	253	684	8.7
		460					
KSS202_0071 MS2R050 CLM502U	56C	230	253	7.118	244	579	5.1
		460					
KSS102_0066 MS1R050 CLM502U	56C	230	271	6.644	228	472	2.7
		460					
<b>1 HP Motor, 320 - 450 RPM Output (Approximate), 1800 RPM Input</b>							
KSS102_0056 MS1R050 CLM502U	56C	230	323	5.568	191	445	2.7
		460					
KSS302_0054 MS3R050 CLM502U	56C	230	335	5.375	184	615	10.8
		460					
KSS202_0052 MS2R050 CLM502U	56C	230	348	5.177	177	521	6.3
		460					
KSS102_0040 MS1R050 CLM502U	56C	230	450	4.000	137	398	2.7
		460					
KSS202_0040 MS2R050 CLM502U	56C	230	450	4.000	137	478	7.5
		460					
<b>1 HP Motor, 13 - 40 RPM Output (Approximate), 3,000 RPM Input</b>							
KSS403_1790 MS4R050 CLM502U	56C	460	17	179.056	3,621	2,518	1.3
KSS403_1340 MS4R050 CLM502U	56C	460	22	134.399	2,718	2,427	1.8
KSS303_1080 MS3R050 CLM502U	56C	460	28	107.814	2,180	1,410	1.4
KSS403_1070 MS4R050 CLM502U	56C	460	28	107.381	2,172	2,252	2.2
KSS303_0900 MS3R050 CLM502U	56C	460	33	90.061	1,821	1,328	1.7
KSS203_0800 MS2R050 CLM502U	56C	460	38	79.615	1,610	1,092	1.1
KSS303_0780 MS3R050 CLM502U	56C	460	38	78.41	1,586	1,268	2.0
KSS403_0780 MS4R050 CLM502U	56C	460	38	78.095	1,579	2,026	3.1

# cLEAN System: GEARBOX & MOTOR

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
<b>1 HP Motor, 40 - 70 RPM Output (Approximate), 3,000 RPM Input</b>							
KSS203_0680 MS2R050 CLM502U	56C	460	44	68.419	1,384	1,038	1.3
KSS303_0650 MS3R050 CLM502U	56C	460	46	65.499	1,325	1,194	2.3
KSS302_0560 MS3R050 CLM502U	56C	460	54	55.705	1,143	1,131	2.1
KSS402_0560 MS4R050 CLM502U	56C	460	54	55.705	1,143	1,810	3.3
KSS203_0540 MS2R050 CLM502U	56C	460	55	54.25	1,097	961	1.6
KSS303_0540 MS3R050 CLM502U	56C	460	56	53.883	1,090	1,119	2.8
KSS403_0540 MS4R050 CLM502U	56C	460	56	53.69	1,086	1,788	4.5
KSS402_0460 MS4R050 CLM502U	56C	460	65	46.308	950	1,702	5.0
KSS303_0450 MS3R050 CLM502U	56C	460	67	44.892	908	1,053	3.4
KSS403_0450 MS4R050 CLM502U	56C	460	67	44.536	901	1,680	5.4

## 1 HP Motor, 75 - 95 RPM Output (Approximate), 3,000 RPM Input

KSS302_0410 MS3R050 CLM502U	56C	460	74	40.512	831	1,017	2.1
KSS402_0410 MS4R050 CLM502U	56C	460	74	40.512	831	1,628	3.3
KSS203_0390 MS2R050 CLM502U	56C	460	76	39.454	798	864	2.2
KSS303_0390 MS3R050 CLM502U	56C	460	77	39.187	792	1,006	3.9
KSS403_0390 MS4R050 CLM502U	56C	460	77	39.047	790	1,608	6.2
KSS102_0350 MS1R050 CLM502U	56C	460	85	35.105	720	693	1.5
KSS402_0350 MS4R050 CLM502U	56C	460	86	34.758	713	1,547	6.8
KSS402_0340 MS4R050 CLM502U	56C	460	89	33.678	691	1,530	5.0
KSS303_0330 MS3R050 CLM502U	56C	460	92	32.649	660	947	4.7
KSS403_0320 MS4R050 CLM502U	56C	460	93	32.39	655	1,511	6.2

## 1 HP Motor, 100 - 300 RPM Output (Approximate), 3,000 RPM Input Continued Next Page

KSS102_0280 MS1R050 CLM502U	56C	460	107	28.048	576	643	1.8
KSS202_0280 MS2R050 CLM502U	56C	460	107	27.95	574	770	3.1
KSS302_0280 MS3R050 CLM502U	56C	460	108	27.883	572	898	5.4
KSS402_0250 MS4R050 CLM502U	56C	460	119	25.279	519	1,391	8.5
KSS302_0230 MS3R050 CLM502U	56C	460	129	23.292	478	846	6.5
KSS202_0200 MS2R050 CLM502U	56C	460	148	20.327	417	693	4.2
KSS302_0200 MS3R050 CLM502U	56C	460	148	20.278	416	808	7.4
KSS202_0175 MS2R050 CLM502U	56C	460	172	17.469	358	659	4.7
KSS402_0175 MS4R050 CLM502U	56C	460	172	17.405	357	1,228	12.4
KSS302_0170 MS3R050 CLM502U	56C	460	177	16.939	348	761	8.4
KSS102_0165 MS1R050 CLM502U	56C	460	179	16.714	343	541	2.7
KSS102_0140 MS1R050 CLM502U	56C	460	213	14.114	290	511	3.0
KSS302_0140 MS3R050 CLM502U	56C	460	215	13.935	286	713	9.6
KSS202_0125 MS2R050 CLM502U	56C	460	236	12.705	261	592	5.8

# Selection Data

## IP68 and IP69K CERTIFIED



CLEAN System

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
-------------------	---	---------	------------	-------	------------------------	-----------	----------------

### 1 HP Motor, 100 - 300 RPM Output (Approximate), 3,000 RPM Input Continued

KSS302_0115 MS3R050 CLM502U*	56C	460	258	11.61	238	671	10.8
KSS102_0100 MS1R050 CLM502U	56C	460	296	10.14	208	458	3.8
KSS302_0100 MS3R050 CLM502U	56C	460	296	10.135	208	641	11.8

### 1 HP Motor, 325 - 750 RPM Output (Approximate), 3,000 RPM Input

KSS102_0092 MS1R050 CLM502U	56C	460	324	9.249	190	444	4.0
KSS302_0084 MS3R050 CLM502U*	56C	460	355	8.444	173	603	13.4
KSS202_0071 MS2R050 CLM502U*	56C	460	421	7.118	146	488	8.5
KSS102_0066 MS1R050 CLM502U	56C	460	452	6.644	136	398	4.4
KSS102_0056 MS1R050 CLM502U*	56C	460	539	5.568	114	375	4.4
KSS202_0052 MS2R050 CLM502U*	56C	460	579	5.177	106	439	10.6
KSS102_0040 MS1R050 CLM502U*	56C	460	750	4.000	82	336	4.4
KSS202_0040 MS2R050 CLM502U*	56C	460	750	4.000	82	403	12.5

### 2 HP Motor, 20 - 40 RPM Output (Approximate), 1,800 RPM Input

KSS402_0560 MS4R140 CLM503U	143/145TC	230	32	55.705	3,812	2,146	1.0
		460					
KSS403_0540 MS4R140 CLM503U	143/145TC	230	34	53.69	3,621	2,120	1.3
		460					
KSS403_0490 MS4R140 CLM503U	143/145TC	230	37	48.944	3,300	2,055	1.4
		460					
KSS402_0460 MS4R140 CLM503U	143/145TC	230	39	46.308	3,169	2,018	1.5
		460					
KSS302_0460 MS3R140 CLM503U	143/145TC	230	39	46.225	3,163	1,260	1.0
		460					
KSS303_0450 MS3R140 CLM503U	143/145TC	230	40	44.892	3,027	1,248	1.0
		460					
KSS403_0450 MS4R140 CLM503U	143/145TC	230	40	44.536	3,003	1,992	1.6
		460					

### 2 HP Motor, 45 - 60 RPM Output (Approximate), 1,800 RPM Input

KSS402_0410 MS4R140 CLM503U	143/145TC	230	44	40.512	2,772	1,930	1.0
		460					
KSS303_0390 MS3R140 CLM503U	143/145TC	230	46	39.187	2,643	1,193	1.2
		460					
KSS403_0390 MS4R140 CLM503U	143/145TC	230	46	39.047	2,633	1,906	1.8
		460					
KSS402_0350 MS4R140 CLM503U	143/145TC	230	52	34.758	2,378	1,834	2.0
		460					

\*Max continuous speed is less than 3,000RPM. Contact STÖBER about max operating speeds.

# cLEAN System: GEARBOX & MOTOR

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
<b>2 HP Motor, 45 - 60 RPM Output (Approximate), 1,800 RPM Input Continued</b>							
KSS302_0350 MS3R140 CLM503U	143/145TC	230	52	34.731	2,377	1,146	1.3
		460					
KSS402_0340 MS4R140 CLM503U	143/145TC	230	53	33.678	2,304	1,814	1.5
		460					
KSS302_0340 MS3R140 CLM503U	143/145TC	230	54	33.618	2,300	1,133	1.0
		460					
KSS303_0330 MS3R140 CLM503U	143/145TC	230	55	32.649	2,202	1,122	1.4
		460					
KSS403_0320 MS4R140 CLM503U	143/145TC	230	56	32.39	2,184	1,791	1.9
		460					
KSS403_0490 MS4R140 CLM503U	143/145TC	460	61	48.944	1,979	1,733	2.4
<b>2 HP Motor, 65 - 90 RPM Output (Approximate), 1,800 RPM Input</b>							
KSS302_0280 MS3R140 CLM503U	143/145TC	230	65	27.883	1,908	1,065	1.6
		460					
KSS402_0280 MS4R140 CLM503U	143/145TC	230	65	27.771	1,900	1,701	2.6
		460					
KSS402_0250 MS4R140 CLM503U	143/145TC	230	71	25.279	1,730	1,649	2.6
		460					
KSS302_0250 MS3R140 CLM503U	143/145TC	230	71	25.259	1,728	1,030	1.8
		460					
KSS202_0250 MS2R140 CLM503U	143/145TC	230	72	25.13	1,720	882	1.0
		460					
KSS302_0230 MS3R140 CLM503U	143/145TC	230	77	23.292	1,594	1,003	1.9
		460					
KSS202_0200 MS2R140 CLM503U	143/145TC	230	89	20.327	1,391	821	1.3
		460					
KSS302_0200 MS3R140 CLM503U	143/145TC	230	89	20.278	1,388	958	2.2
		460					
KSS402_0200 MS4R140 CLM503U	143/145TC	230	89	20.197	1,382	1,530	3.4
		460					
<b>2 HP Motor, 100 - 110 RPM Output (Approximate), 1,800 RPM Input</b>							
KSS202_0175 MS2R140 CLM503U	143/145TC	230	103	17.469	1,195	781	1.4
		460					
KSS402_0175 MS4R140 CLM503U	143/145TC	230	103	17.405	1,191	1,456	3.7
		460					
KSS302_0175 MS3R140 CLM503U	143/145TC	230	104	17.293	1,183	908	2.5
		460					

# IP68 and IP69K CERTIFIED



CLEAN System

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
<b>2 HP Motor, 100 - 110 RPM Output (Approximate), 1,800 RPM Input Continued</b>							
KSS302_0170 MS3R140 CLM503U	143/145TC	230	106	16.939	1,159	902	2.5
		460					
<b>2 HP Motor, 130 - 150 RPM Output (Approximate), 1,800 RPM Input</b>							
KSS302_0140 MS3R140 CLM503U	143/145TC	230	129	13.935	954	845	2.9
		460					
KSS402_0140 MS4R140 CLM503U	143/145TC	230	130	13.885	950	1,350	4.3
		460					
KSS202_0140 MS2R140 CLM503U	143/145TC	230	130	13.851	948	723	1.6
		460					
KSS202_0125 MS2R140 CLM503U	143/145TC	230	142	12.705	869	702	1.7
		460					
KSS402_0125 MS4R140 CLM503U	143/145TC	230	142	12.658	866	1,309	4.6
		460					
KSS302_0125 MS3R140 CLM503U	143/145TC	230	143	12.577	861	817	3.1
		460					
<b>2 HP Motor, 155 - 180 RPM Output (Approximate), 1,800 RPM Input</b>							
KSS302_0115 MS3R140 CLM503U	143/145TC	230	155	11.61	794	795	3.2
		460					
KSS202_0115 MS2R140 CLM503U	143/145TC	230	156	11.546	790	680	1.9
		460					
KSS402_0115 MS4R140 CLM503U	143/145TC	230	156	11.518	788	1,269	4.7
		460					4.9
KSS302_0100 MS3R140 CLM503U	143/145TC	230	178	10.135	694	760	3.5
		460					
KSS402_0100 MS4R140 CLM503U	143/145TC	230	178	10.098	691	1,214	4.7
		460					5.3
KSS202_0100 MS2R140 CLM503U	143/145TC	230	179	10.073	689	650	2.0
		460					

# cLEAN System: GEARBOX & MOTOR

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
<b>2 HP Motor, 210 - 260 RPM Output (Approximate), 1,800 RPM Input</b>							
KSS302_0084 MS3R140 CLM503U	143/145TC	230	213	8.444	578	715	4.0
		460					
KSS202_0084 MS2R140 CLM503U	143/145TC	230	214	8.397	575	612	2.3
		460					
KSS402_0084 MS4R140 CLM503U	143/145TC	230	215	8.377	573	1,141	6.0
		460					4.7
KSS302_0074 MS3R140 CLM503U	143/145TC	230	244	7.391	506	684	6.0
		460					4.4
KSS202_0071 MS2R140 CLM503U	143/145TC	230	253	7.118	487	579	2.6
		460					
<b>2 HP Motor, 330 - 450 RPM Output (Approximate), 1,800 RPM Input</b>							
KSS302_0054 MS3R140 CLM503U	143/145TC	230	335	5.375	368	615	5.4
		460					
KSS202_0052 MS2R140 CLM503U	143/145TC	230	348	5.177	354	521	3.2
		460					
KSS202_0040 MS2R140 CLM503U	143/145TC	230	450	4.000	274	478	3.8
		460					
KSS302_0040 MS3R140 CLM503U	143/145TC	230	450	4.000	274	557	6.6
		460					
<b>2 HP Motor, 20 - 40 RPM Output (Approximate), 3,000 RPM Input</b>							
KSS403_1070 MS4R140 CLM503U	143/145TC	460	28	107.381	4,343	2,252	1.1
KSS303_0780 MS3R140 CLM503U	143/145TC	460	38	78.41	3,171	1,268	1.0
KSS403_0780 MS4R140 CLM503U	143/145TC	460	38	78.095	3,159	2,026	1.5
<b>2 HP Motor, 45 - 80 RPM Output (Approximate), 3,000 RPM Input</b>							
KSS303_0650 MS3R140 CLM503U	143/145TC	460	46	65.499	2,649	1,194	1.2
KSS302_0560 MS3R140 CLM503U	143/145TC	460	54	55.705	2,286	1,131	1.0
KSS402_0560 MS4R140 CLM503U	143/145TC	460	54	55.705	2,286	1,810	1.6
KSS303_0540 MS3R140 CLM503U	143/145TC	460	56	53.883	2,179	1,119	1.4
KSS403_0540 MS4R140 CLM503U	143/145TC	460	56	53.69	2,172	1,788	2.2
KSS402_0460 MS4R140 CLM503U	143/145TC	460	65	46.308	1,900	1,702	2.5
KSS303_0450 MS3R140 CLM503U	143/145TC	460	67	44.892	1,816	1,053	1.7
KSS403_0450 MS4R140 CLM503U	143/145TC	460	67	44.536	1,801	1,680	2.7
KSS302_0410 MS3R140 CLM503U	143/145TC	460	74	40.512	1,663	1,017	1.0

# IP68 and IP69K CERTIFIED



CLEAN System

Part Number Codes	Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter	Voltage	RPM Output	Ratio	Output Torque In. Lbs.	OHL (lbs)	Service Factor
-------------------	---	---------	------------	-------	------------------------	-----------	----------------

## 2 HP Motor, 45 - 80 RPM Output (Approximate), 3,000 RPM Input Continued

KSS402_0410 MS4R140 CLM503U	143/145TC	460	74	40.512	1,663	1,628	1.6
KSS303_0390 MS3R140 CLM503U	143/145TC	460	77	39.187	1,585	1,006	2.0
KSS403_0390 MS4R140 CLM503U	143/145TC	460	77	39.047	1,579	1,608	3.1

## 2 HP Motor, 85 - 180 RPM Output (Approximate), 3,000 RPM Input

KSS402_0350 MS4R140 CLM503U	143/145TC	460	86	34.758	1,426	1,547	3.4
KSS402_0340 MS4R140 CLM503U	143/145TC	460	89	33.678	1,382	1,530	2.5
KSS303_0330 MS3R140 CLM503U	143/145TC	460	92	32.649	1,321	947	2.3
KSS403_0320 MS4R140 CLM503U	143/145TC	460	93	32.39	1,310	1,511	3.1
KSS202_0280 MS2R140 CLM503U	143/145TC	460	107	27.95	1,147	770	1.5
KSS302_0280 MS3R140 CLM503U	143/145TC	460	108	27.883	1,144	898	2.7
KSS402_0280 MS4R140 CLM503U	143/145TC	460	108	27.771	1,140	1,435	4.3
KSS402_0250 MS4R140 CLM503U	143/145TC	460	119	25.279	1,037	1,391	4.3
KSS302_0230 MS3R140 CLM503U	143/145TC	460	129	23.292	956	846	3.2
KSS202_0200 MS2R140 CLM503U	143/145TC	460	148	20.327	834	693	2.1
KSS302_0200 MS3R140 CLM503U	143/145TC	460	148	20.278	832	808	3.7
KSS402_0200 MS4R140 CLM503U	143/145TC	460	149	20.197	829	1,291	5.6
KSS202_0175 MS2R140 CLM503U	143/145TC	460	172	17.469	717	659	2.3
KSS402_0175 MS4R140 CLM503U	143/145TC	460	172	17.405	714	1,228	6.2
KSS302_0170 MS3R140 CLM503U	143/145TC	460	177	16.939	695	761	4.2

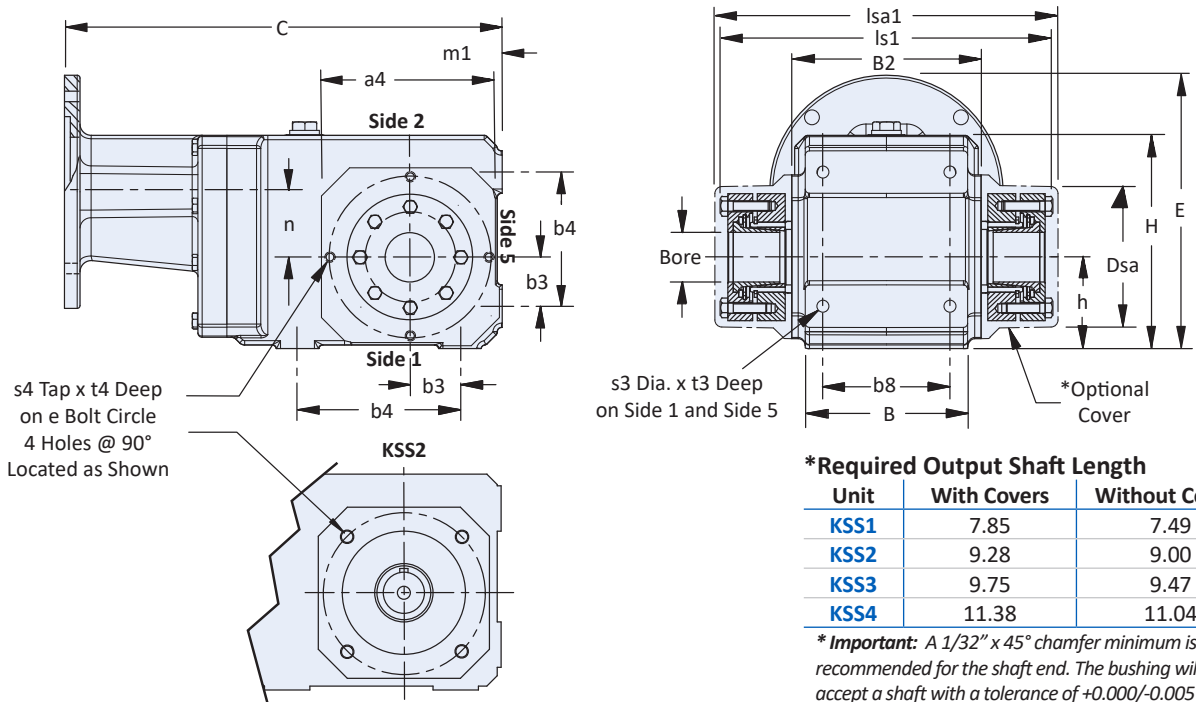
## 2 HP Motor, 215 - 580 RPM Output (Approximate), 3,000 RPM Input

KSS302_0140 MS3R140 CLM503U	143/145TC	460	215	13.935	572	713	4.8
KSS402_0140 MS4R140 CLM503U	143/145TC	460	216	13.885	570	1,139	7.2
KSS202_0125 MS2R140 CLM503U	143/145TC	460	236	12.705	521	592	2.9
KSS402_0125 MS4R140 CLM503U	143/145TC	460	237	12.658	519	1,104	7.6
KSS302_0115 MS3R140 CLM503U*	143/145TC	460	258	11.61	476	671	5.4
KSS302_0100 MS3R140 CLM503U	143/145TC	460	296	10.135	416	641	5.9
KSS302_0084 MS3R140 CLM503U*	143/145TC	460	355	8.444	347	603	6.7
KSS202_0071 MS2R140 CLM503U*	143/145TC	460	421	7.118	292	488	4.3
KSS202_0052 MS2R140 CLM503U*	143/145TC	460	579	5.177	212	439	5.3
KSS202_0040 MS2R140 CLM503U*	143/145TC	460	750	4.000	164	403	6.3

\*Max continuous speed is less than 3,000RPM. Contact STÖBER about max operating speeds.



## “W” Double Bushing Output with “G” Pilot Circle Diameter (PCD) Tapped Holes



### \*Required Output Shaft Length

Unit	With Covers	Without Covers
KSS1	7.85	7.49
KSS2	9.28	9.00
KSS3	9.75	9.47
KSS4	11.38	11.04

\* Important: A 1/32" x 45° chamfer minimum is recommended for the shaft end. The bushing will accept a shaft with a tolerance of +0.000/-0.005 in.

**Table 1 KSS Series – “W” Double Wobble-Free Bushing Output with “G” Pilot Circle Diameter (PCD) Tapped Holes – Dimensions (in)**

Base Module	a4	B2	b3	b4	b7	b8	Dsa	e	H	h	ls1	lsa1	m1	s3	s4	t3	t4
KSS1	4.53	4.17	1.18	3.54	2.95	2.76	3.07	3.54	4.96	2.36	7.64	7.80	2.36	M8x1.25	M8x1.25	0.51	0.51
KSS2	4.57	5.28	1.38	4.53	3.74	3.54	3.92	4.53	5.94	2.56	8.90	9.36	2.56	M10x1.50	M8x1.25	0.63	0.51
KSS3	5.20	5.75	1.38	5.12	4.13	4.13	3.78	4.53	6.56	2.95	9.41	9.95	2.95	M10x1.50	M8x1.25	0.63	0.55
KSS4	5.99	6.81	1.97	6.10	5.00	4.72	4.33	5.12	7.89	3.54	11.06	11.60	3.54	M12x1.75	M10x1.5	0.75	0.63

**Table 2 KSS Series – “WG” Style Motor Adapter Dimensions (in)**

Base Module	NEMA C-Face	B	C	E	n	Wt. lbs
KSS102WG_MS1R050	56C	3.54	10.55	7.03	1.42	29
KSS202WG_MS2R050	56C	4.41	12.20	7.62	1.81	40
KSS202WG_MS2R140	143/145TC	4.41	12.20	7.62	1.81	40
KSS203WG_MS2R050	56C	4.53	13.07	6.64	0.83	53
KSS302WG_MS3R050	56C		13.23		2.09	55
KSS302WG_MS3R140	143/145TC	5.51	13.23	8.29	2.09	55
KSS302WG_MS3R180	182/184TC		14.57		2.07	67
KSS303WG_MS3R050	56C	5.51	15.22	6.83	0.63	55
KSS303WG_MS3R140	143/145TC					
KSS402WG_MS4R050	56C		14.76	9.96		84
KSS402WG_MS4R140	143/145TC	5.71	14.76	9.96	2.36	84
KSS402WG_MS4R180	182/184TC		15.79	10.91		89
KSS403WG_MS4R050	56C	5.71	16.46	8.39	0.98	94
KSS403WG_MS4R140	143/145TC					

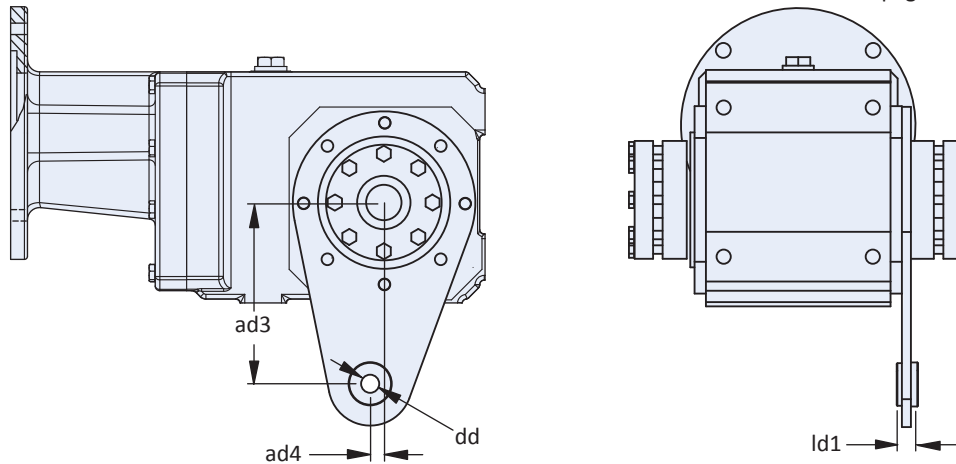
**Table 3 “WFBSS” Double Side Bushings Stock Bore Sizes**

Base Module	Inches						Metric – mm
	1	1-3/16	1-1/4	1-3/8	1-7/16	1-1/2	40
KSS1	WFBSS1-100	—	—	—	—	—	—
KSS2	WFBSS2-100	WFBSS2-103	WFBSS2-104	WFBSS2-106	WFBSS2-107	WFBSS2-108	—
KSS3	WFBSS3-100	WFBSS3-103	WFBSS3-104	WFBSS3-106	WFBSS3-107	WFBSS3-108	—
KSS4	—	—	WFBSS4-104	—	WFBSS4-107	WFBSS4-108	—



## “W” Double Bushing Output with “GD” Torque Arm Bracket

Refer to page 62 for all other dimensions



CLEAN System

Table 4 “GD” Torque Arm

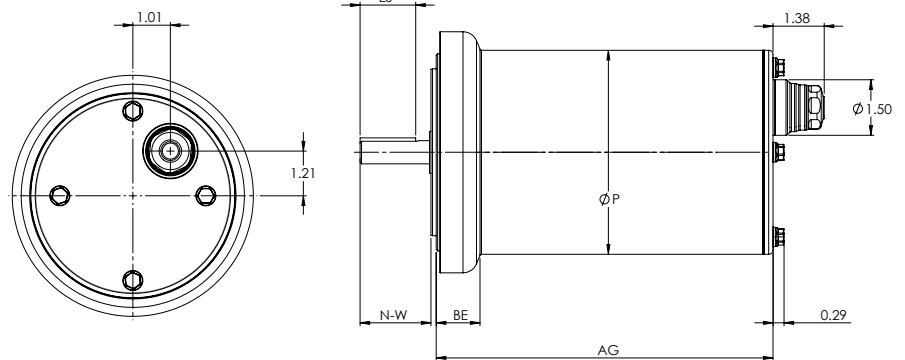
Base Module	Kit Number	mm			
		ad3	ad4	dd	ld1
KSS1	CS213227	130	10	13	15
KSS2	CS129573	130	10	13	15
KSS3	CS129573	130	10	13	15
KSS4	CS139679	130	10	13	15

Note: a bushing output plastic cover cannot be used on the Torque Arm side of speed reducer. A plastic cover can only be used on the side opposite the torque arm.

## cLEAN Motor Inline Gland Option

Table 5 cLEAN Motor Dimensions (in)

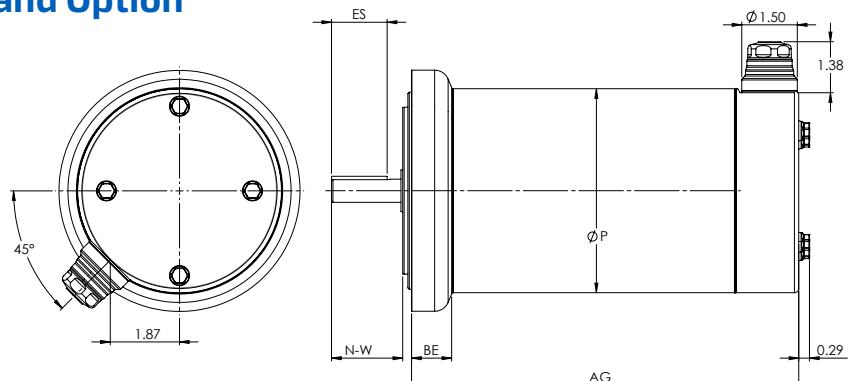
Base Module	AG	BE	ES	N-W	P
CLM502	9.08	1.18	1.5	1.91	5.5
CLM503	10.58	1.18	2.06	1.98	5.5



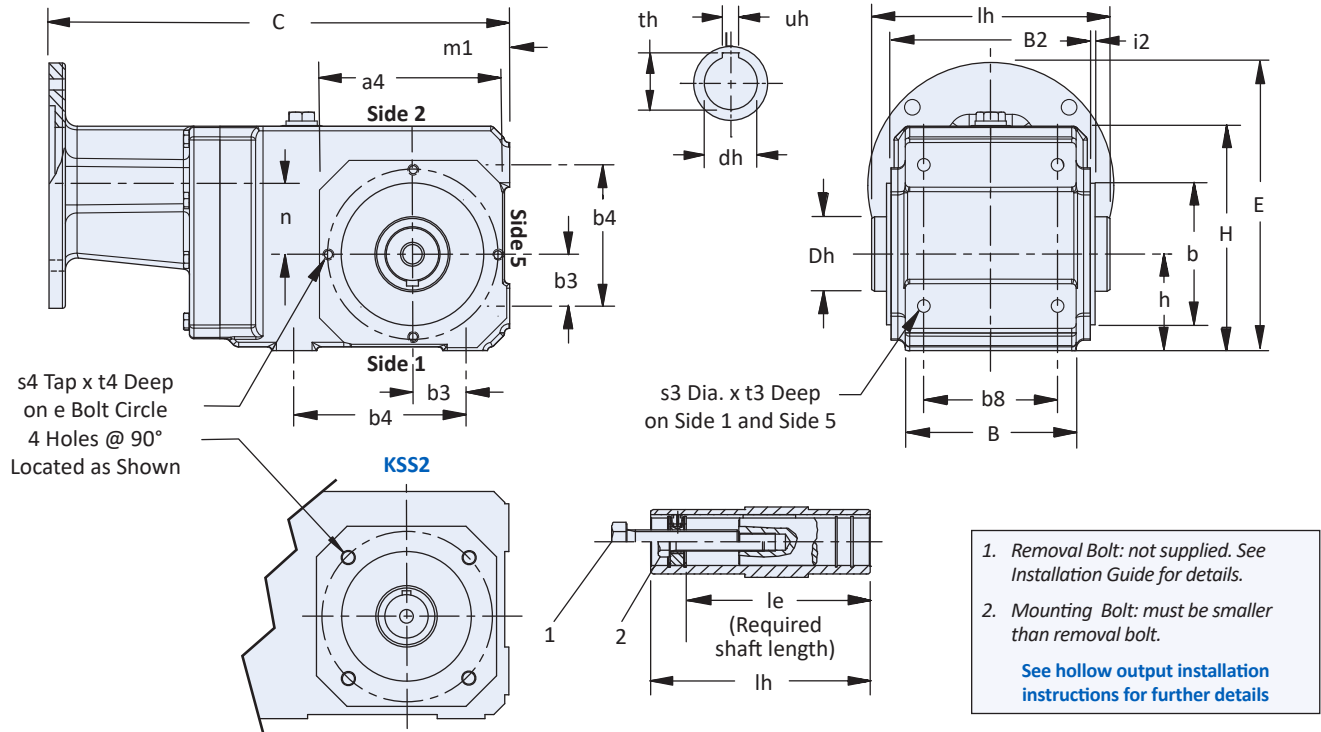
## cLEAN Motor Right Angle Gland Option

Table 5 cLEAN Motor Dimensions (in)

Base Module	AG	BE	ES	N-W	P
CLM502	9.08	1.18	1.5	1.91	5.5
CLM503	10.58	1.18	2.06	1.98	5.5



## “A” Hollow Bore Output with “G” Pilot Circle Diameter (PCD) Tapped Holes



**Table 1 KSS Series – “A” Hollow Output with “G” Pilot Circle Diameter (PCD) Tapped Holes – Dimensions (in)**

Base Module	a4	b	B2	b4	b7	b8	e	H	h	i2	lh	m1	s3	s4	t3	t4
KSS1	4.53	2.95	4.17	3.54	2.95	2.76	3.54	4.96	2.36	0.12	4.72	2.36	M8x1.25	M8x1.25	0.51	0.51
KSS2	4.57	3.74	5.28	4.53	3.74	3.54	4.53	5.94	2.56	0.12	5.83	2.56	M10x1.50	M8x1.25	0.63	0.51
KSS3	5.20	3.74	5.75	5.12	4.13	4.13	4.53	6.56	2.95	0.12	6.30	2.95	M10x1.50	M8x1.25	0.63	0.55
KSS4	5.99	4.33	6.81	6.10	5.00	4.72	5.12	7.89	3.54	0.14	7.40	3.54	M12x1.75	M10x1.5	0.75	0.63

**Table 2 KSS Series – “AG” Style Motor Adapter Dimensions (in)**

Base Module	NEMA C-Face	B	b3	C	E	n	Wt. lbs
KSS102AG_MS1R050	56C	3.54	1.18	10.55	7.03	1.42	29
KSS202AG_MS2R050	56C	4.41	1.38	12.20	7.62	1.81	40
KSS202AG_MS2R140	143/145TC	4.41	1.38	12.20	7.62	1.81	40
KSS203AG_MS2R050	56C	4.53	1.54	13.07	6.64	0.83	53
KSS302AG_MS3R050	56C			13.23	8.29	2.09	55
KSS302AG_MS3R140	143/145TC	5.51	1.38	13.23	8.29	2.09	55
KSS302AG_MS3R180	182/184TC			14.57	9.52	2.07	67
KSS303AG_MS3R050	56C	5.51	1.38	15.22	6.83	0.63	55
KSS303AG_MS3R140	143/145TC						
KSS402AG_MS4R050	56C			14.76	9.66		84
KSS402AG_MS4R140	143/145TC	5.71	1.97	14.76	9.66	2.36	84
KSS402AG_MS4R180	182/184TC			15.79	10.91		89
KSS403AG_MS4R050	56C	5.71	1.97	16.46	8.39	0.98	94
KSS403AG_MS4R140	143/145TC						

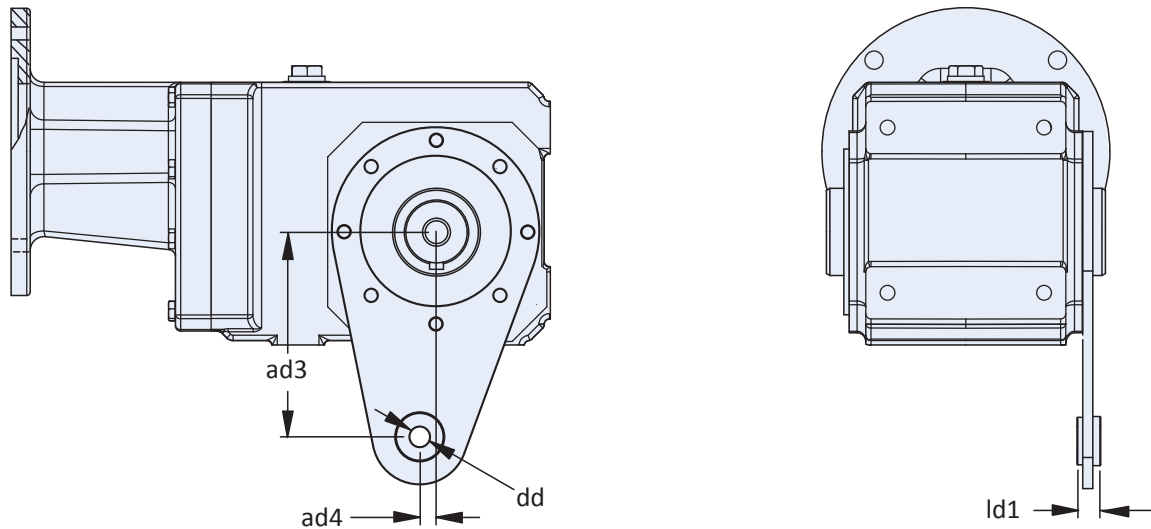
**Table 3 “A” Hollow Bore Output — Standard Sizes (see page 14 for other available output options)**

Base Module	Inches					
	Dh	dh	le	th	uh	Removal Bolt 1
KSS1	1.57	1	3.86	1.11	1/4	1/2 – 13
KSS2	1.97	1-1/4	4.78	1.37	1/4	1/2 – 13
KSS3	1.97	1-3/8	4.92	1.52	5/16	5/8 – 11
KSS4	2.17	1-1/2	6.18	1.67	3/8	3/4 – 10



## "A" Hollow Bore Output with "GD" Torque Arm Bracket

Refer to page 28 for all other dimensions



cLEAN System

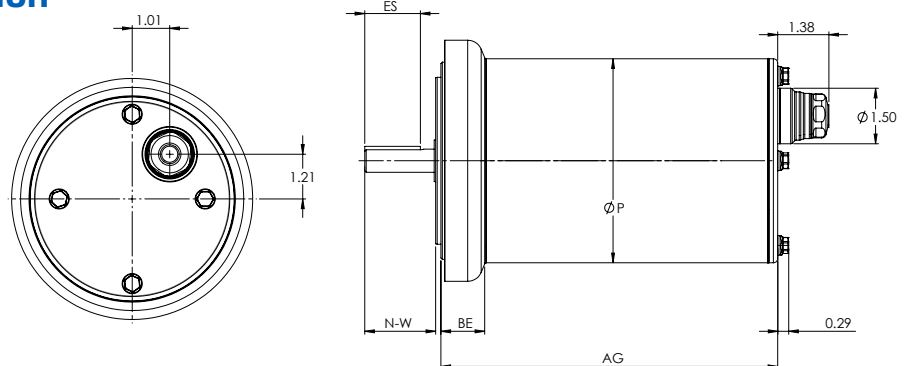
**Table 4 "GD" Torque Arm**

Base Module	Kit Number	mm			
		ad3	ad4	dd	ld1
KSS1	CS213227	130	10	13	15
KSS2	CS129573	130	10	13	15
KSS3	CS129573	130	10	13	15
KSS4	CS139679	130	10	13	15

## cLEAN Motor Inline Gland Option

**Table 5 cLEAN Motor Dimensions (in)**

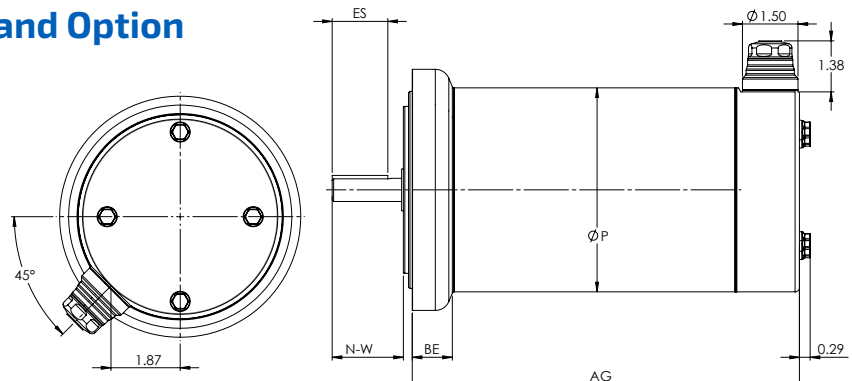
Base Module	AG	BE	ES	N-W	P
CLM502	9.08	1.18	1.5	1.91	5.5
CLM503	10.58	1.18	2.06	1.98	5.5



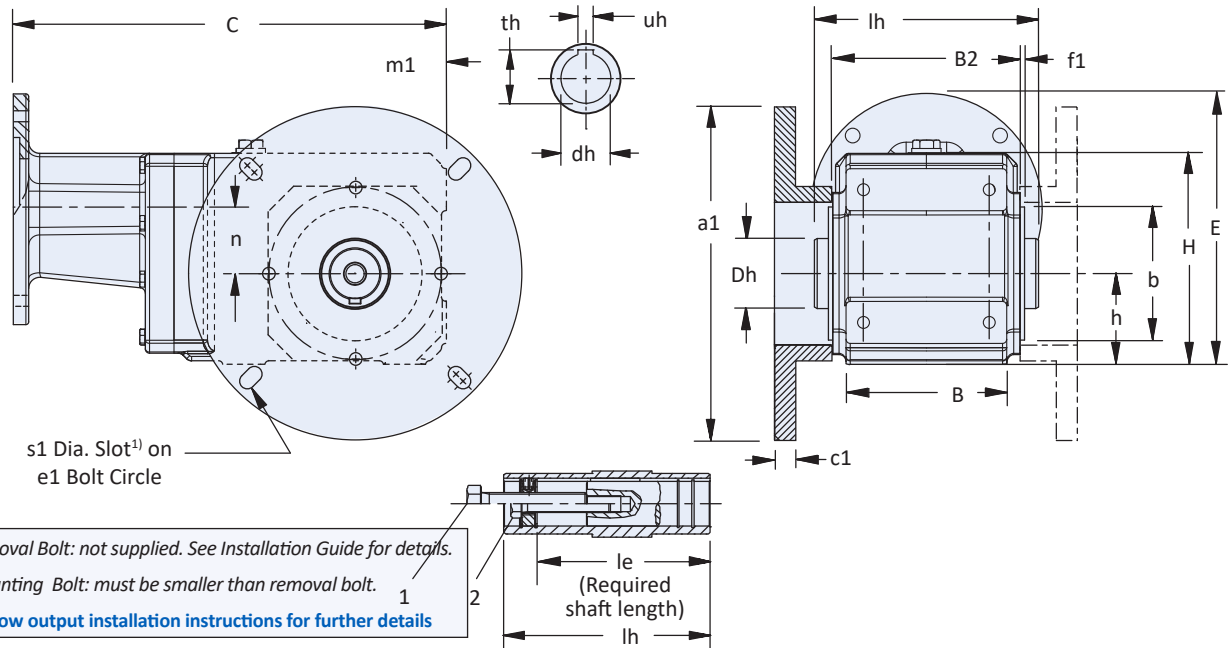
## cLEAN Motor Right Angle Gland Option

**Table 5 cLEAN Motor Dimensions (in)**

Base Module	AG	BE	ES	N-W	P
CLM502	9.08	1.18	1.5	1.91	5.5
CLM503	10.58	1.18	2.06	1.98	5.5



## "A" Hollow Bore Output with "F" Round Flange Housing



**Table 1 KSS Series – "A" Hollow Output with "F" Round Flange Housing – Dimensions (in)**

Base Module	a1	b	B2	c1	c2	e1		f1	H	h	lh	m1	s1 <sup>1)</sup>
						Min.	Max. <sup>1)</sup>						
KSS1	6.75	2.95	4.17	0.55	1.50	5.87	—	0.12	4.96	2.36	4.72	2.36	0.33
KSS2	8.74	3.74	5.28	0.55	1.50	7.48	8.00	0.12	5.94	2.56	5.28	2.56	0.41
KSS3	8.74	3.74	5.75	0.55	1.50	7.48	8.00	0.12	6.56	2.95	6.30	2.95	0.41
KSS4	9.84	4.33	6.81	0.55	1.50	8.46	—	0.14	7.89	3.54	7.40	3.54	0.53

1) KSS1 & KSS4 mounting bolt hole is not a slot.

**Table 2 KSS Series – "AF" Style Motor Adapter Dimensions (in)**

Base Module	NEMA C-Face	B	C	E	n	Wt. lbs
KSS102AF_MS1R050	56C	3.54	10.09	7.03	1.42	29
KSS202AF_MS2R050	56C	4.41	12.20	7.62	1.81	40
KSS202AF_MS2R140	143/145TC	4.41	12.20	7.62	1.81	40
KSS203AF_MS2R050	56C	4.53	13.07	6.64	1.81	53
KSS302AF_MS3R050	56C	5.51	13.23	8.29	2.09	55
KSS302AF_MS3R140	143/145TC	5.51	13.23	8.29	2.09	55
KSS302AF_MS3R180	182/184TC	5.51	14.57	9.52	2.07	67
KSS303AF_MS3R050	56C	5.51	15.22	6.83	0.63	55
KSS303AF_MS3R140	143/145TC	5.51	15.22	6.83	0.63	55
KSS402AF_MS4R050	56C	5.71	14.76	9.96	2.36	84
KSS402AF_MS4R140	143/145TC	5.71	14.76	9.96	2.36	84
KSS402AF_MS4R180	182/184TC	5.71	15.79	10.91	2.36	89
KSS403AF_MS4R050	56C	5.71	16.46	8.39	0.98	94
KSS403AF_MS4R140	143/145TC	5.71	16.46	8.39	0.98	94

**Table 3 "A" Hollow Bore Output — Standard Sizes** (see page 14 for other available output options)

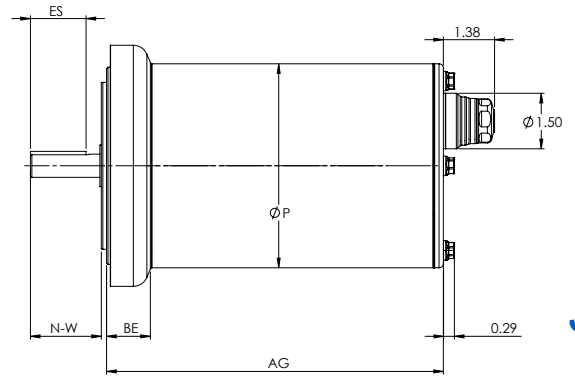
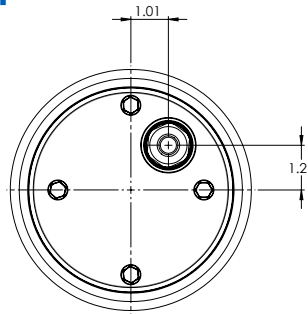
Base Module	Inches					
	Dh	dh	le	th	uh	Removal Bolt 1
KSS1	1.57	1	3.86	1.11	1/4	1/2 – 13
KSS2	1.97	1-1/4	4.78	1.37	1/4	1/2 – 13
KSS3	1.97	1-3/8	4.92	1.52	5/16	5/8 – 11
KSS4	2.17	1-1/2	6.18	1.67	3/8	3/4 – 10



### cLEAN Motor Inline Gland Option

Table 5 cLEAN Motor Dimensions (in)

Base	AG	BE	ES	N-W	P
CLM502	9.08	1.18	1.5	1.91	5.5
CLM503	10.58	1.18	2.06	1.98	5.5

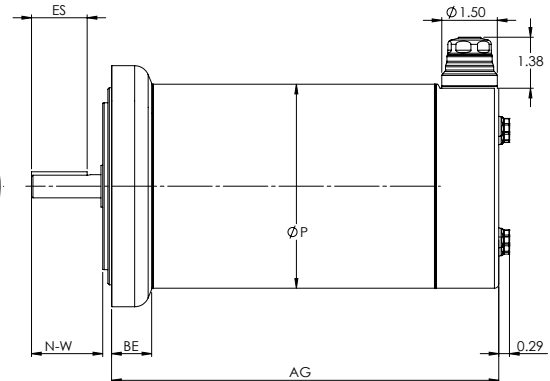
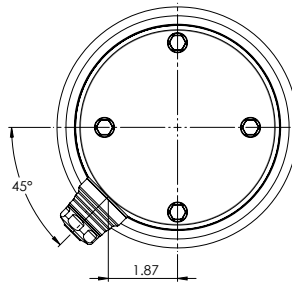


cLEAN System

### cLEAN Motor Right Angle Gland Option

Table 5 cLEAN Motor Dimensions (in)

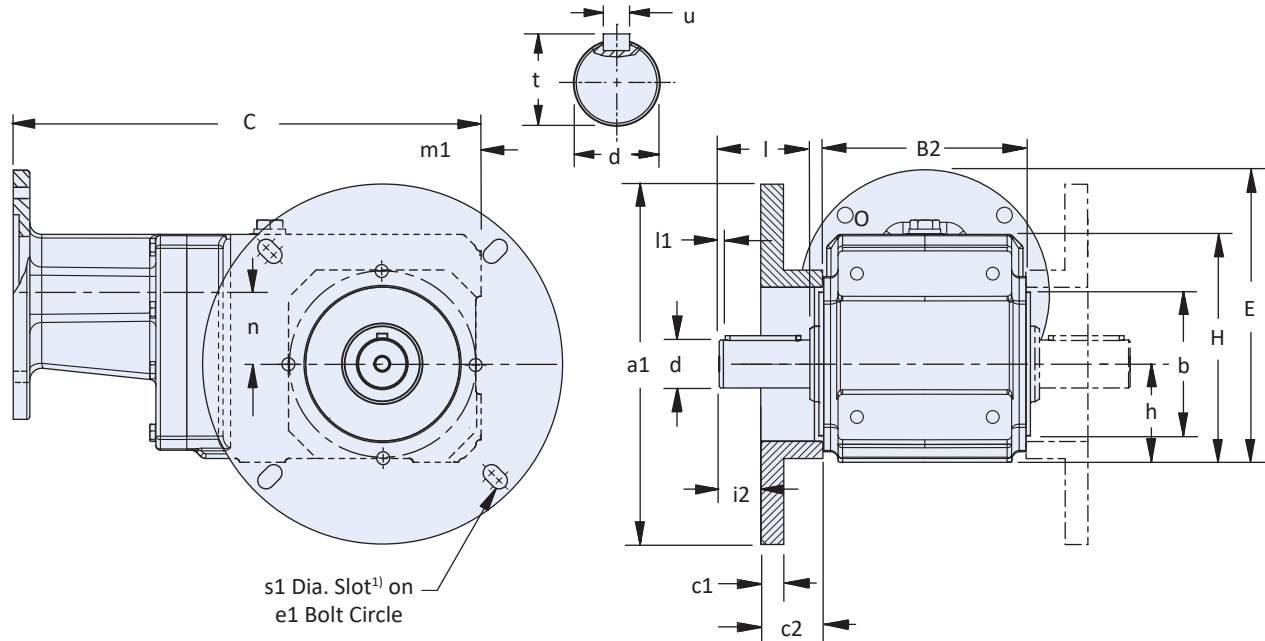
Base	AG	BE	ES	N-W	P
CLM502	9.08	1.18	1.5	1.91	5.5
CLM503	10.58	1.18	2.06	1.98	5.5



# Dimensional Data

## cLEAN System: GEARBOX & MOTOR

### “V” Solid Shaft Output with “F” Round Flange Housing



**Table 1 KSS Series – “V” Solid Shaft Output with “F” Round Flange Housing Dimensions (in)**

Base Module	a1	b	B2	c1	c2	e1		H	h	i2	l	l1	m1	s1 <sup>1)</sup>
						Min.	Max. <sup>1)</sup>							
KSS1	6.75	2.95	4.17	0.55	1.50	5.87	—	4.96	2.36	0.94	1.97	0.16	2.36	0.33
KSS2	8.74	3.74	5.28	0.55	1.50	7.48	8.00	5.94	2.56	1.21	2.36	0.16	2.56	0.41
KSS3	8.74	3.74	5.75	0.55	1.50	7.48	8.00	6.56	2.95	1.21	2.36	0.16	2.95	0.41
KSS4	9.84	4.33	6.81	0.55	1.50	8.46	—	7.89	3.54	1.63	2.76	0.16	3.54	0.53

1) KSS1 & KSS4 mounting bolt hole is not a slot.

**Table 2 KSS Series – “VF” Style Motor Adapter Dimensions (in)**

Base Module	NEMA C-Face	C	E	n	Wt. lbs
KSS102VF_MS1R050	56C	10.55	7.03	1.42	29
KSS202VF_MS2R050	56C	12.20	7.62	1.81	40
KSS202VF_MS2R140	143/145TC				
KSS203VF_MS2R050	56C	13.07	6.64	0.83	53
KSS302VF_MS3R050	56C	13.23	8.29	2.09	55
KSS302VF_MS3R140	143/145TC	13.23	8.29	2.09	55
KSS302VF_MS3R180	182/184TC	14.57	9.52	2.07	67
KSS303VF_MS3R050	56C	15.22	6.83	0.63	55
KSS303VF_MS3R140	143/145TC				
KSS402VF_MS4R050	56C	14.76	9.96	2.36	84
KSS402VF_MS4R140	143/145TC	14.76	9.96		84
KSS402VF_MS4R180	182/184TC	15.79	10.91		89
KSS403VF_MS4R050	56C	16.46	8.39	0.98	94
KSS403VF_MS4R140	143/145TC				

**Table 3 “V” Solid Shaft Output — Standard Sizes**

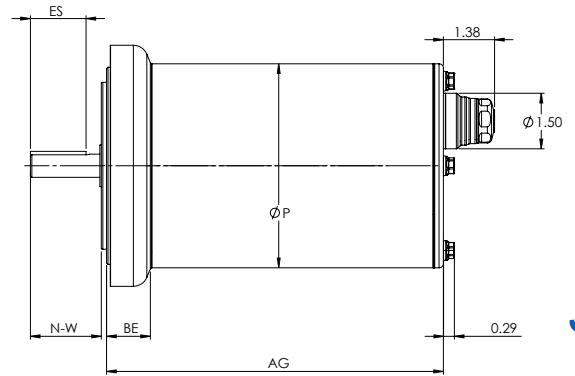
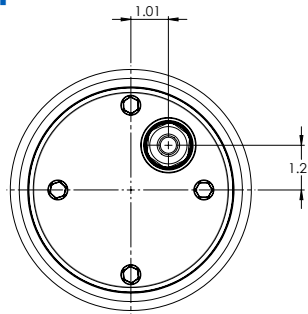
Base Module	Inches		
	d	t	u— Key
KSS1	1	1.11	1/4 x 1/4 x 1-9/16
KSS2	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS3	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS4	1-3/8	1.51	5/16 x 5/16 x 2-5/16



### cLEAN Motor Inline Gland Option

Table 5 cLEAN Motor Dimensions (in)

Base	AG	BE	ES	N-W	P
CLM502	9.08	1.18	1.5	1.91	5.5
CLM503	10.58	1.18	2.06	1.98	5.5

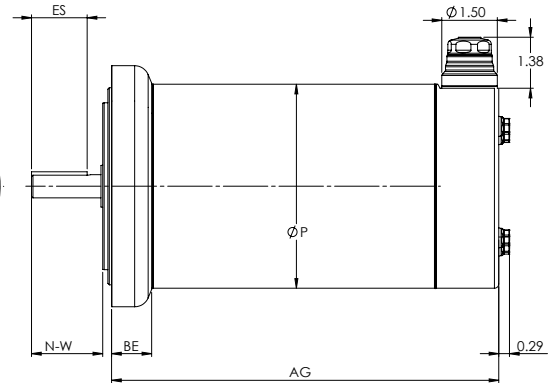
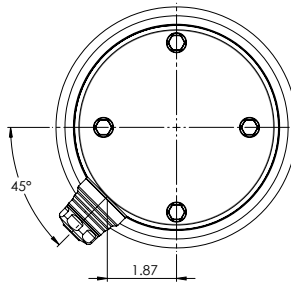


cLEAN System

### cLEAN Motor Right Angle Gland Option

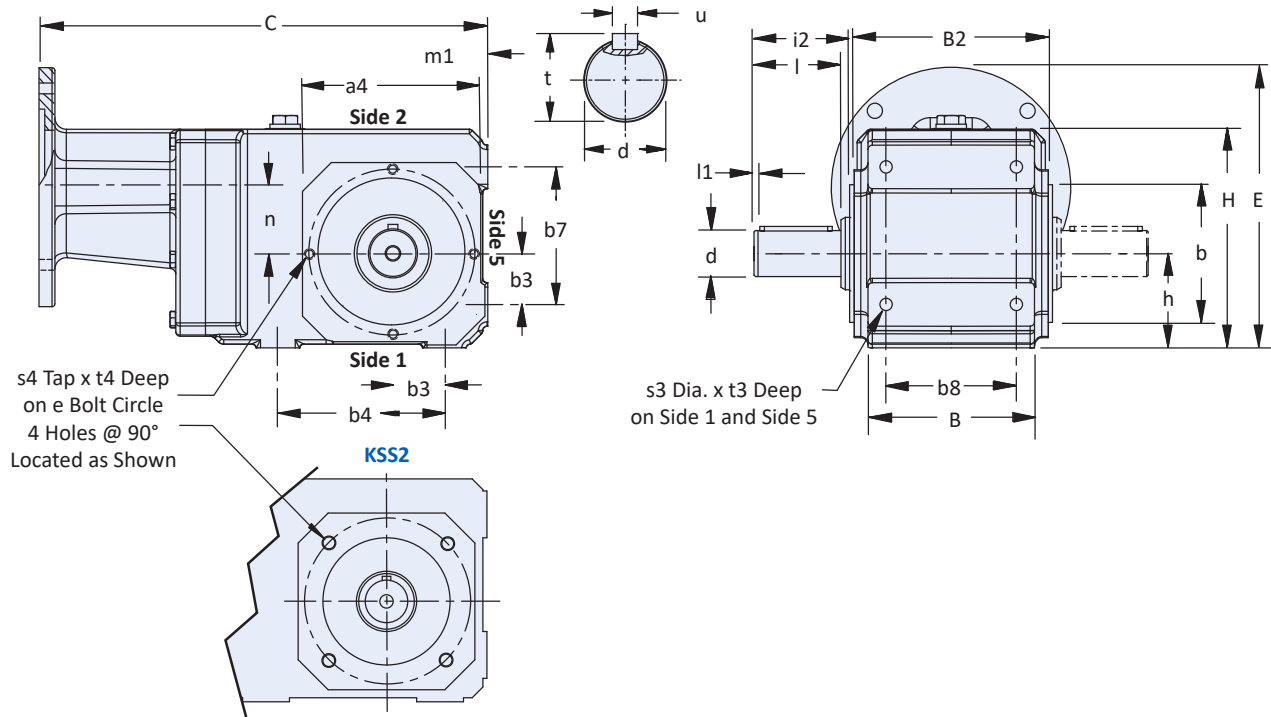
Table 5 cLEAN Motor Dimensions (in)

Base	AG	BE	ES	N-W	P
CLM502	9.08	1.18	1.5	1.91	5.5
CLM503	10.58	1.18	2.06	1.98	5.5





## "V" Solid Shaft Output with "G" Pilot Circle Diameter (PCD) Tapped Holes



**Table 1 KSS Series – "V" Solid Shaft Output with "G" Pilot Circle Diameter (PCD) Tapped Holes – Dimensions (in)**

Base Module	a4	b	B2	b3	b4	b7	b8	e	H	h	i2	l	l1	m1	s3	s4	t3	t4
KSS1	4.53	2.95	4.17	1.18	3.54	2.95	2.76	3.54	4.96	2.36	2.32	1.97	0.16	2.36	M8x1.25	M8x1.25	0.51	0.51
KSS2	4.57	3.74	5.28	1.38	4.53	3.74	3.54	4.53	5.94	2.56	2.60	2.36	0.16	2.56	M10x1.50	M8x1.25	0.63	0.51
KSS3	5.20	3.74	5.75	1.38	5.12	4.13	4.13	4.53	6.56	2.95	2.60	2.36	0.16	2.95	M10x1.50	M8x1.25	0.63	0.55
KSS4	5.99	4.33	6.81	1.97	6.10	5.00	4.72	5.12	7.89	3.54	3.39	2.76	0.16	3.54	M12x1.75	M10x1.5	0.75	0.63

**Table 2 KSS Series – "VG" Style Motor Adapter Dimensions (in)**

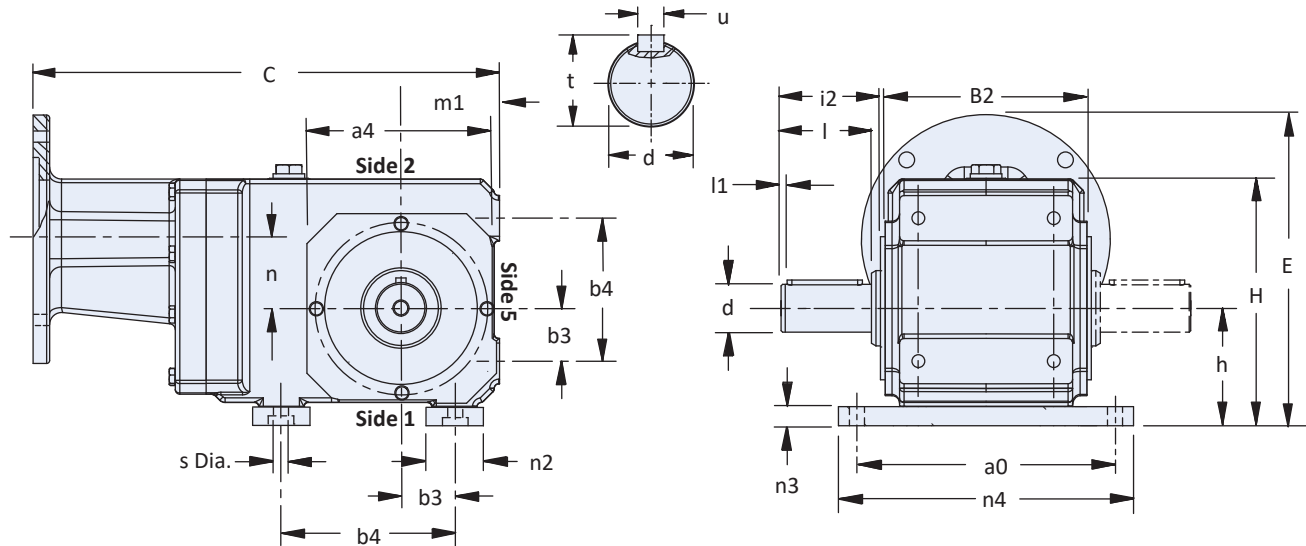
Base Module	NEMA C-Face	a6	B	b6	C	c6	E	e6	m	n	s6	Wt. lbs
KSS102VG_MS1R050	56C	6.50	3.54	4.500	10.55	3.81	7.03	5.87	4.38	1.42	0.41	29
KSS202VG_MS2R050	56C	6.50	4.41	4.500	12.20	4.53	7.62	5.87	5.11	1.81	0.41	40
KSS202VG_MS2R140	143/145TC	6.50	4.53	4.500	13.07	3.31	6.64	5.87	7.20	0.83	0.41	53
KSS203VG_MS2R050	56C	6.50	4.53	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302VG_MS3R050	56C	6.50	5.51	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302VG_MS3R140	143/145TC	6.50	5.51	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302VG_MS3R180	182/184TC	9.00	5.51	4.500	14.57	6.59	9.52	7.25	5.03	2.07	0.55	67
KSS303VG_MS3R050	56C	6.50	5.51	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS303VG_MS3R140	143/145TC	6.50	5.51	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS402VG_MS4R050	56C	6.50	5.71	4.500	14.76	4.53	9.96	5.87			0.41	84
KSS402VG_MS4R140	143/145TC	6.50	5.71	4.500	14.76	4.53	9.96	5.87	6.69	2.36	0.41	84
KSS402VG_MS4R180	182/184TC	9.00	5.71	4.500	15.79	5.55	10.91	7.25			0.55	89
KSS403VG_MS4R050	56C	6.50	5.71	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94
KSS403VG_MS4R140	143/145TC	6.50	5.71	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94

**Table 3 "V" Solid Shaft Output — Standard Sizes**

Base Module	Inches		
	d	t	u— Key
KSS1	1	1.11	1/4 x 1/4 x 1-9/16
KSS2	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS3	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS4	1-3/8	1.51	5/16 x 5/16 x 2-5/16



“V” Solid Shaft Output with “NG” Foot Mount Housing



CLEAN System

Table 1 KSS Series – “V” Solid Shaft Output with “NG” Foot Mount – Dimensions (in)

Base Module	a0	a4	B2	b3	b4	b7	e	H	h	i2	l	l1	m1	n2	n3	n4	s
KSS1	4.53	4.53	4.17	1.18	3.54	2.95	3.54	5.46	2.36	2.32	1.97	0.16	2.36	1.50	0.50	5.51	0.35
KSS2	6.73	4.57	5.28	1.38	4.53	3.74	4.53	6.44	3.07	2.60	2.36	0.16	2.56	1.50	0.50	7.72	0.39
KSS3	6.73	5.20	5.75	1.38	5.12	4.13	4.53	7.06	3.44	2.60	2.36	0.16	2.95	1.50	0.50	7.72	0.39
KSS4	7.87	5.99	6.81	1.97	6.10	5.00	5.12	8.64	3.54	3.39	2.76	0.16	3.54	1.50	0.75	9.06	0.55

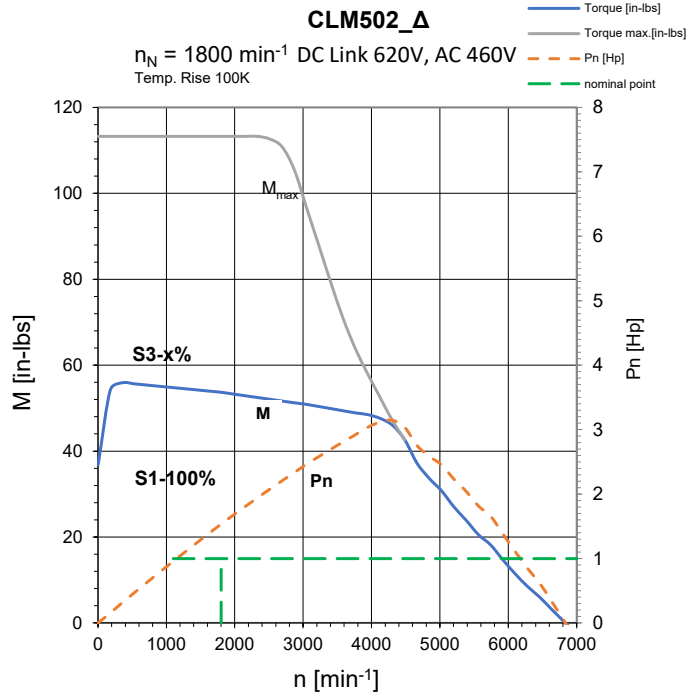
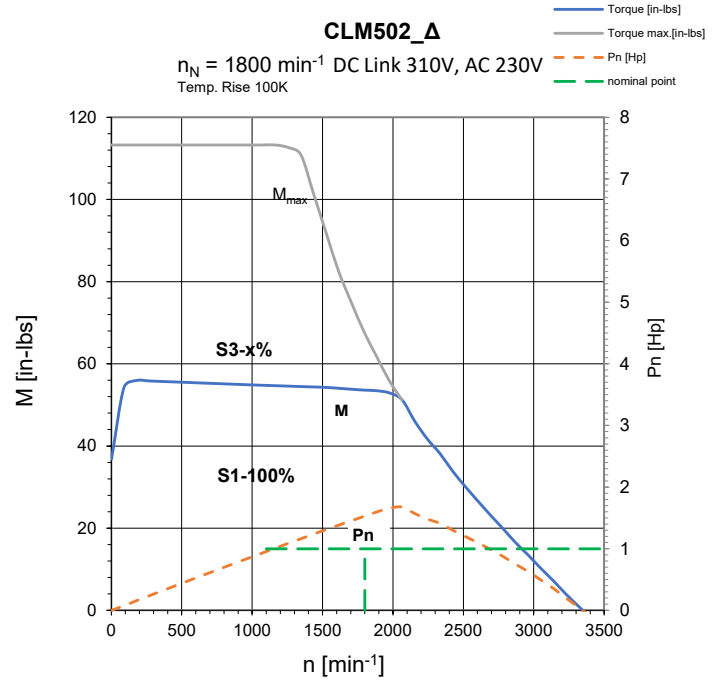
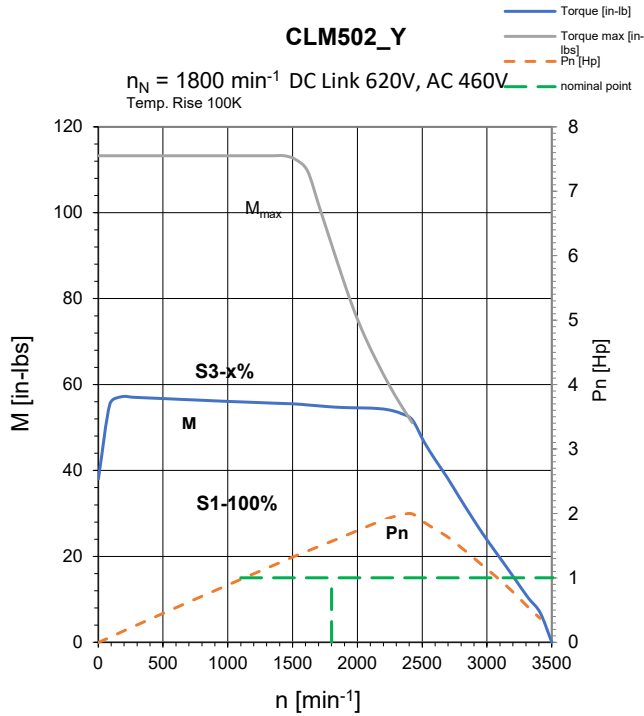
Table 2 KSS Series – “VNG” Style Motor Adapter Dimensions (in)

Base Module	NEMA C-Face	a4	C	E	n	Wt. lbs
KSS102VNG_MS1R050	56C	4.53	10.55	7.53	1.42	29
KSS202VNG_MS2R050	56C	4.57	12.20	8.12	1.81	40
KSS202VNG_MS2R140	143/145TC					
KSS203VNG_MS2R050	56C	4.57	13.07	7.14	0.83	53
KSS302VNG_MS3R050	56C		13.23	8.79	2.09	55
KSS302VNG_MS3R140	143/145TC	5.20	13.23	8.79	2.09	55
KSS302VNG_MS3R180	182/184TC		14.57	10.02	2.07	67
KSS303VNG_MS3R050	56C	5.20	15.22	7.33	0.63	55
KSS303VNG_MS3R140	143/145TC					
KSS402VNG_MS4R050	56C		14.76	10.41		84
KSS402VNG_MS4R140	143/145TC	5.99	14.76	10.41	2.36	84
KSS402VNG_MS4R180	182/184TC		15.79	11.66		89
KSS403VNG_MS4R050	56C	5.99	16.46	9.14	0.98	94
KSS403VNG_MS4R140	143/145TC					

Table 3 “V” Solid Shaft Output — Standard Sizes

Base Module	Inches		
	d	t	u- Key
KSS1	1	1.11	1/4 x 1/4 x 1-9/16
KSS2	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS3	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS4	1-3/8	1.51	5/16 x 5/16 x 2-5/16

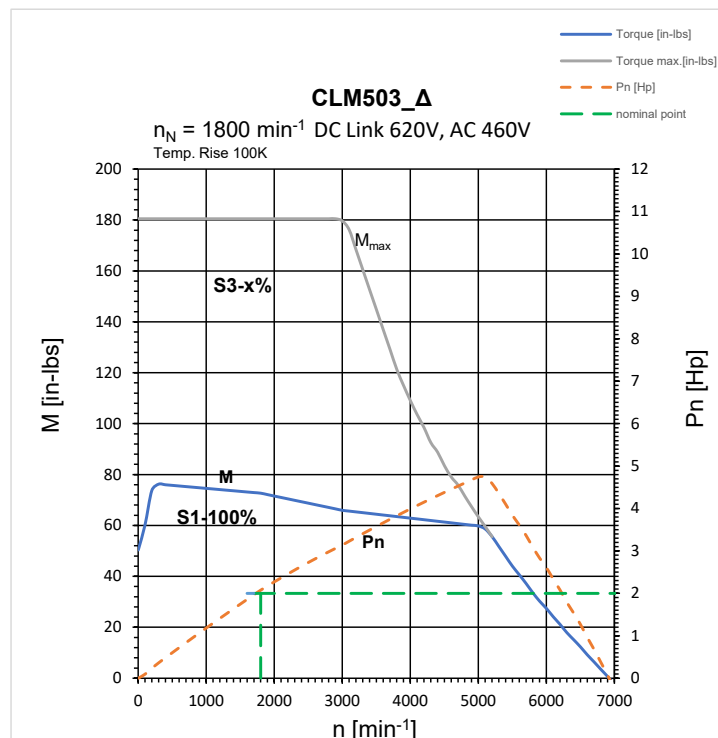
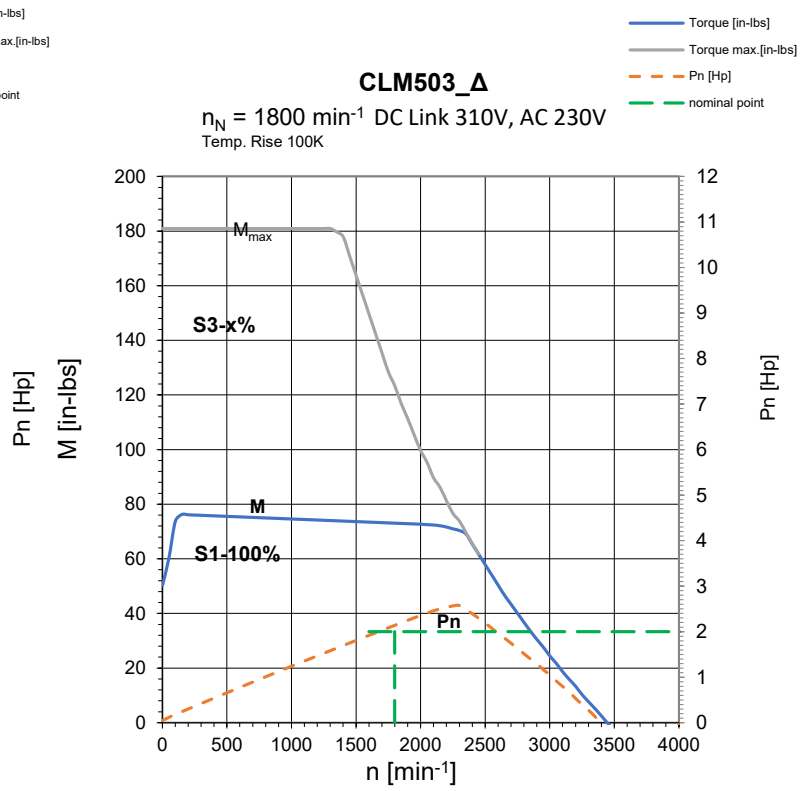
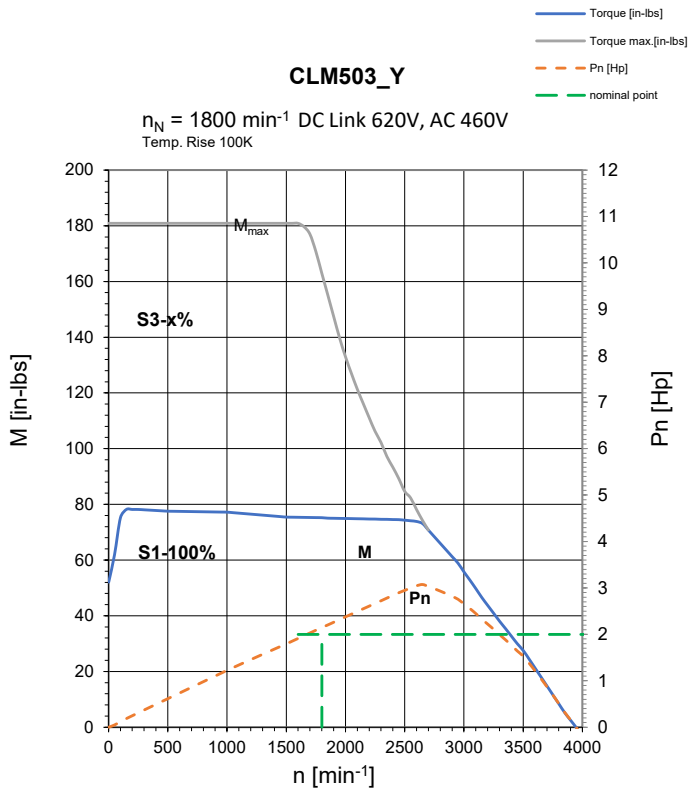
## Torque Speed Curves for CLM502 (1HP)





## Torque Speed Curves for CLM503 (2HP)

CLEAN System

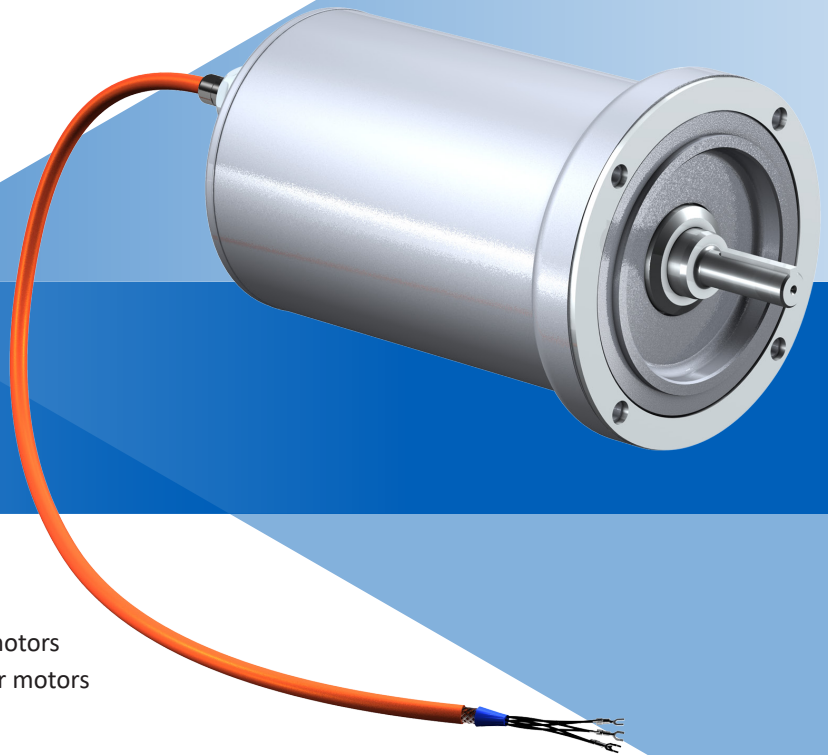


## cLEAN System: MOTOR

### Features

- All stainless steel hardware
- High frequency injection technology
- Speeds from 0 - 3000 RPM
- IE5 Efficiency
- Double seals on all ingress points

*The cLEAN Motor is available as a standalone motor if you are already using a KSS gearbox. It is IP68 and IP69K Certified, capable of handling the harshest washdowns. It is totally enclosed preventing water ingress and eliminating premature failure.*



### Benefits

- 3 year warranty
- Compact - 1/3 smaller than competitor motors
- Runs cooler - 86°F cooler than competitor motors
- No maintenance - totally enclosed
- No harborage point for bacteria
- Energy savings - up to 93% efficiency
- IP68 and IP69K Certified to prevent water and dust ingress
- Designed to EHEDG Standards
- Assembled in USA
- 1 week lead time

# Overview

# IP68 and IP69K CERTIFIED



## Ordering Options At-a-Glance

Use the appropriate order codes below to build a part number for the complete assembly.

Part Number Example: 

1	2	3	4	5	6	7	8	9
CLM	5	0	3	U	S	HF	O	201

	Design Option	Part Number Code	Description
1	Series	CLM	cLEAN motor - all stainless steel
2	Size	5	1 size
3	Generation	0	Version of motor
4	Length	2 3	Number of motor magnet stacks (2 is 1HP, 3 is 2HP)
5	Cooling	U	Convection cooling
6	Housing	S	Standard
7	Drive Controller	HF	Delta MH300
8	Brake	O	Without holding brake
9	Voltage Constant	201	201 V/1000 rpm (example)

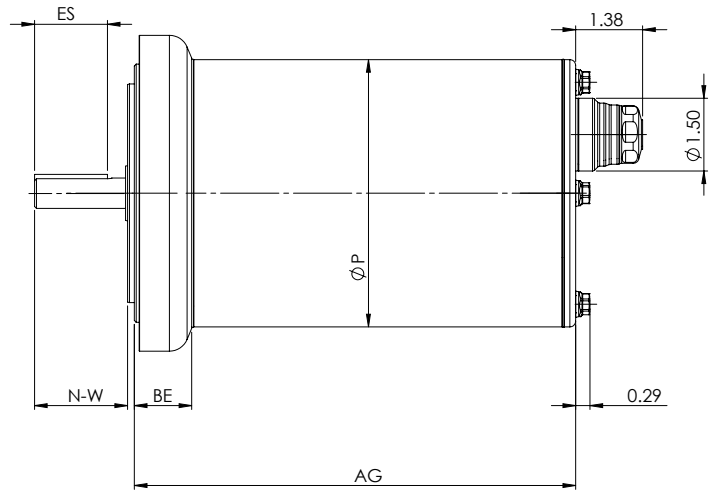
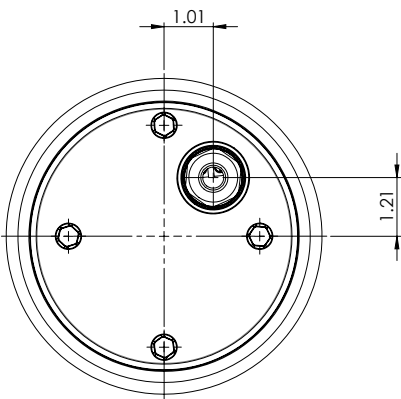
cLEAN System

# cLEAN System: MOTOR

Part Number Codes	Nom. Power (P <sub>N</sub> )	AC Voltage (U <sub>AC</sub> )	Rated Speed (n <sub>N</sub> )	Nom. Torque (M <sub>N</sub> )	Nom. Current (I <sub>N</sub> )	Torque Constant (K <sub>MN</sub> )	Nom. Power (P <sub>N</sub> )	Motor Eff. (η <sub>mot</sub> )	Max Torque (M <sub>max</sub> )	Max Current (I <sub>max</sub> )	Weight (m)	Voltage Constant (K <sub>EM</sub> )	Temperature Rise @ Rated Load in Winding
	HP	V	RPM	In. Lbs.	A	In. Lbs/A	kW	%	In. Lbs.	A	Lbs.	V/1000 RPM	F
CLM502U	1	460Y	1800	35.30	1.60	195.25	0.75	90.77	113.29	4.86	35.00	94/84	115.00
		230Δ	1800	35.30	2.73	114.44	0.75	88.18	113.29	8.42	35.00	54/49	134.5
		460Δ	3000	21.15	1.74	107.63	0.75	90.62	113.29	8.42	35.00	54/49	108.0
CLM503U	2	460Y	1800	70.54	3.25	192.06	1.50	91.00	180.56	7.76	44.75	92/82	185.0
		230Δ	1800	70.63	5.67	110.28	1.50	88.90	180.56	13.44	44.75	53/48	206.0
		460Δ	3000	42.31	3.57	104.88	1.50	90.94	180.56	13.44	44.75	53/48	144.0



cLEAN Motor



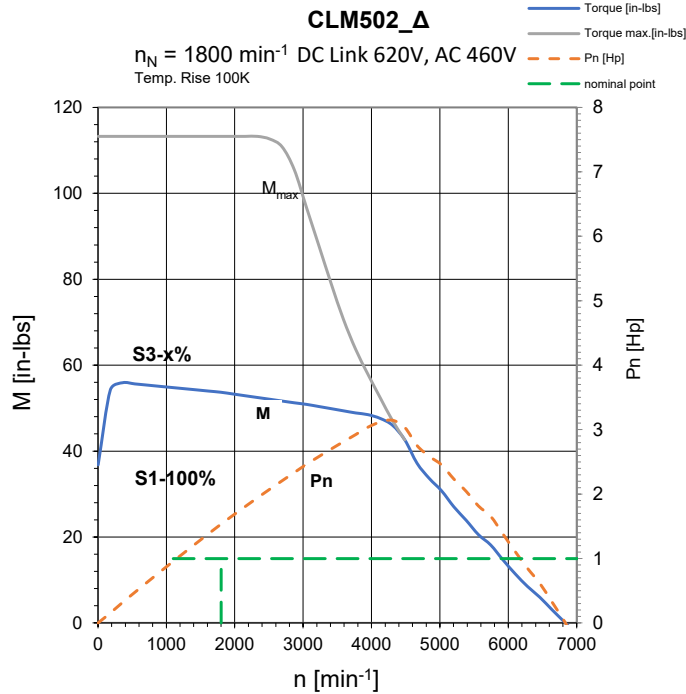
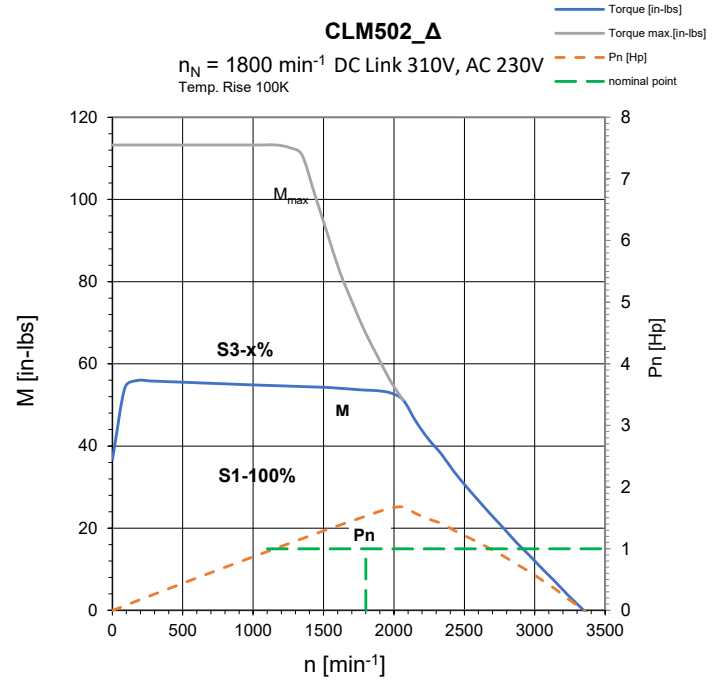
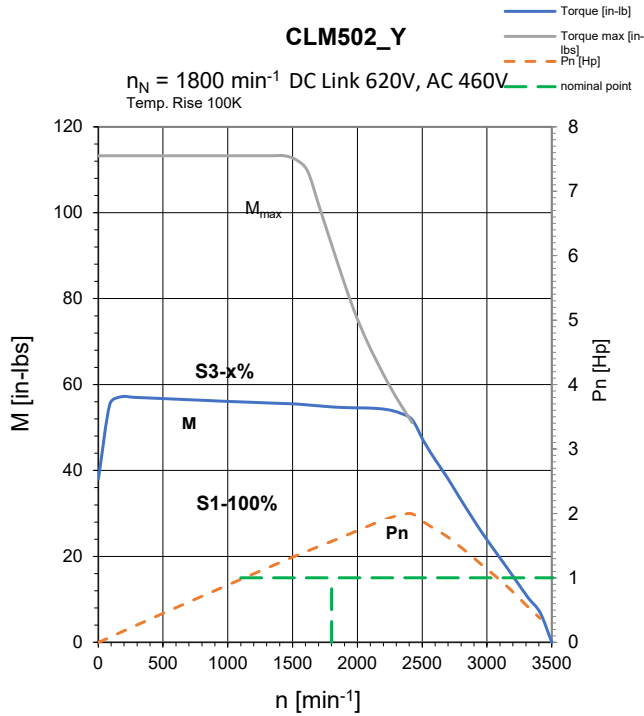
cLEAN System

Table 1 cLEAN Motor Dimensions (in)

Base Module	AG	BE	N-W	P
CLM502	9.08	1.18	1.91	5.5
CLM503	10.58	1.18	1.98	5.5



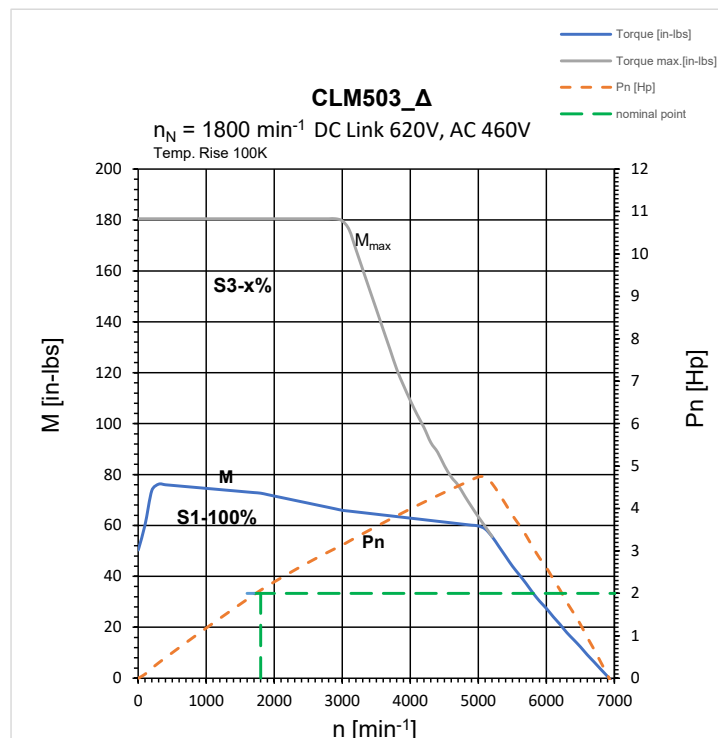
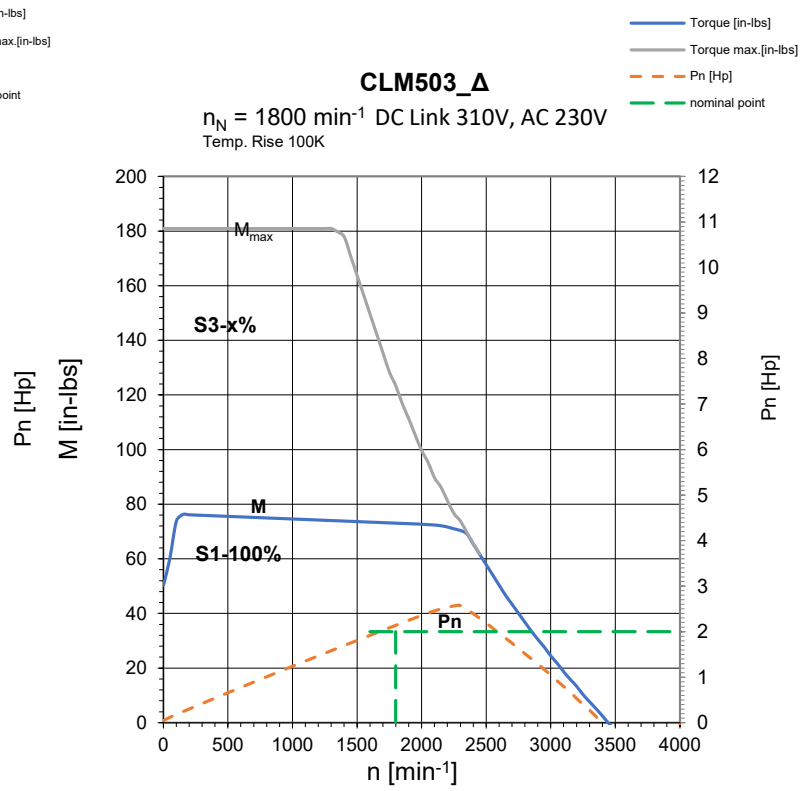
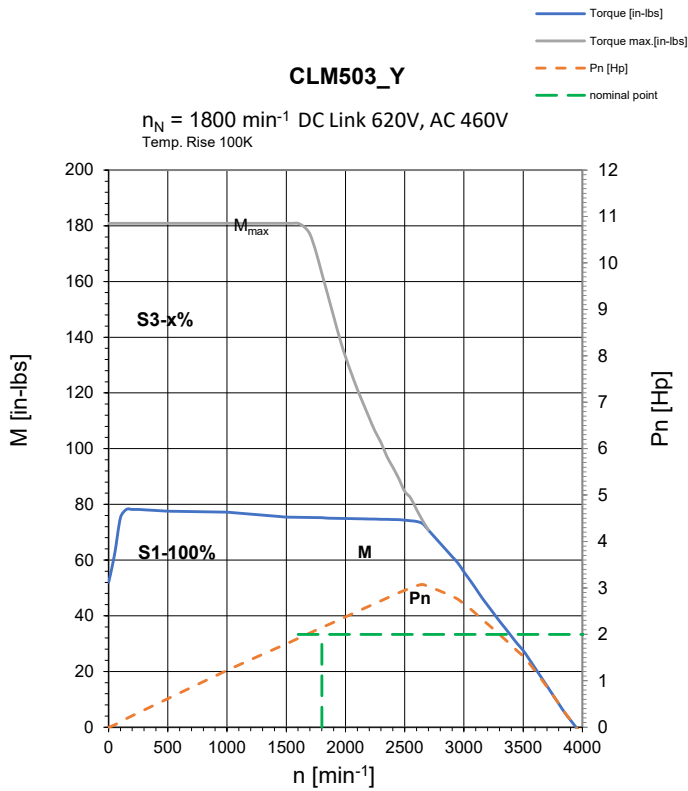
## Torque Speed Curves for CLM502 (1HP)





## Torque Speed Curves for CLM503 (2HP)

CLEAN System

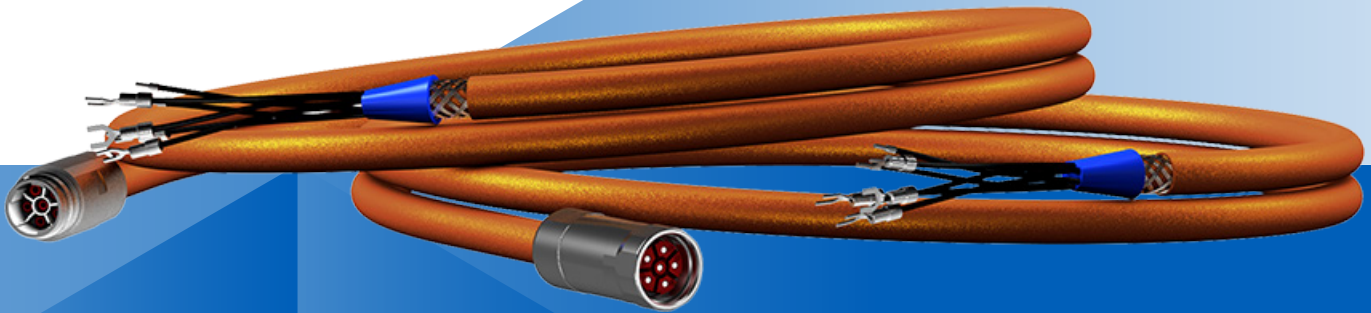


## cLEAN System: CABLE

### Features

- 4 power wires 16AWG size and 1 twisted pair of 22AWG size
- Braided Shielding > 85%
- Stainless Steel connector for quick disconnects

*The cLEAN Cable is designed to withstand harsh environments. It is ECOLAB Certified, washdown environment rated, and contains braided shielding. Utilizing a stainless steel connector for quick disconnect, the motor will be up and running in no time.*



### Benefits

- 3 year warranty
- Twisted pair shielded to maintain signal integrity
- Low-impedance signal return path prevents common-mode currents
- Flexible - suitable for drag chains
- Braided Shielding > 85%
- Excellent EMI/RFI noise reduction
- Washdown environment rated and tested
- DESINA Standard - Orange, RAL 2003
- ECOLAB Certified against various cleaning/disinfecting agents
- IP69k Certified when mated to prevent water and dust ingress
- Assembled in USA

# Overview



## Ordering Options At-a-Glance

Use the appropriate order codes below to build a part number for the complete assembly.

Part Number Example: **1** CP | **2** CMP1 | **3** 002.5M

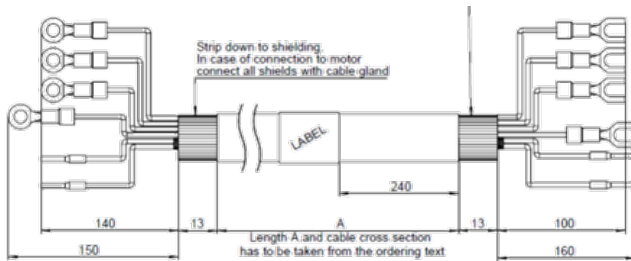
	Design Option	Part Number Code	Description
<b>1</b>	Series	CP	Cable
<b>2</b>	Configuration	CMP1	2 options - 1 for flying leads or 23 for coupling with extension
<b>3</b>	Cable Length	002.5	Length of cable

\*Note:

## Cable Configuration Options

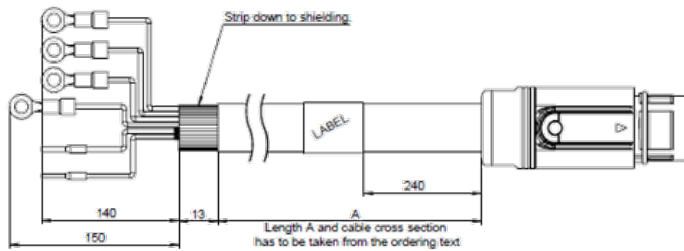
When ordering the cLEAN cable, you must select a connection configuration.

cLEAN System



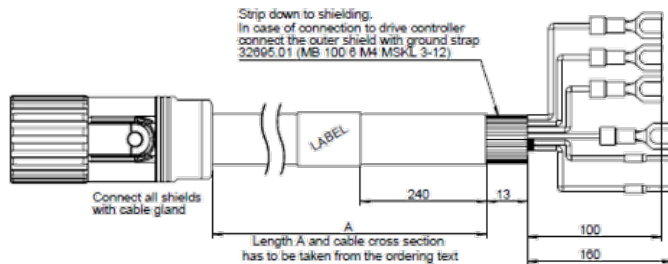
### CMP1 - Flying Leads

the cable from the motor to the disconnect/drive



### CMP2 - Coupling

works with CMP3 cable and runs from the motor



### CMP3 - Extension

works with CMP2 cable and runs from the drive.

Table 1 Cable Length Options

Meters	Part Number
2.5	002.5
5.0	005.0
7.5	007.5
10.0	010.0
12.5	012.5
15	015.0
18	018.0
20	020.0
25	025.0
30	030.0
35	035.0
40	040.0
50	050.0
60	060.0
70	070.0
80	080.0
90	090.0
100	100.0

# cLEAN System: DRIVE

## Features

- Works with numerous communications protocols, including MODBUS, PROFIBUS, EtherCAT, and EtherNET/IP
- Removable keypad for remote operation away from the drive
- Removable RFI jumper for different application methods
- Built in Safe Torque Off (STO) Compliant with:
  - EN ISO 13849-1 Cat3/PLd
  - EN 60204-1 Category 0
  - EN 61508 SIL2
  - EN 62061 SIL CL 2
- 16 segment display and quick settings wheel for ease of navigation
- Removable fan for ease of service/replacement

*The cLEAN Drive can be installed in minutes. Working with a variety of communication protocols, the cLEAN Drive is easy to program and service.*



## Benefits

- Protection against overcurrent, overvoltage, over-temperature, and phase failure
- Compact - saves valuable space in cabinet with no air gap
- Removable drive card for easy programming of new drive - no recommissioning
- Simple to program - less than 15 minutes
- 4 save slots for storing parameter sets on the removable keypad for reading/writing to the drive
- Built in USB port for fast and easy programming and real-time monitoring
- 5K built in PLC steps for distributed and independent operation
- Spring clamp terminals for control wires, saving time when wiring
- Assembled in USA



# Overview

## Ordering Options At-a-Glance

Use the appropriate order codes below to build a part number for the complete assembly.

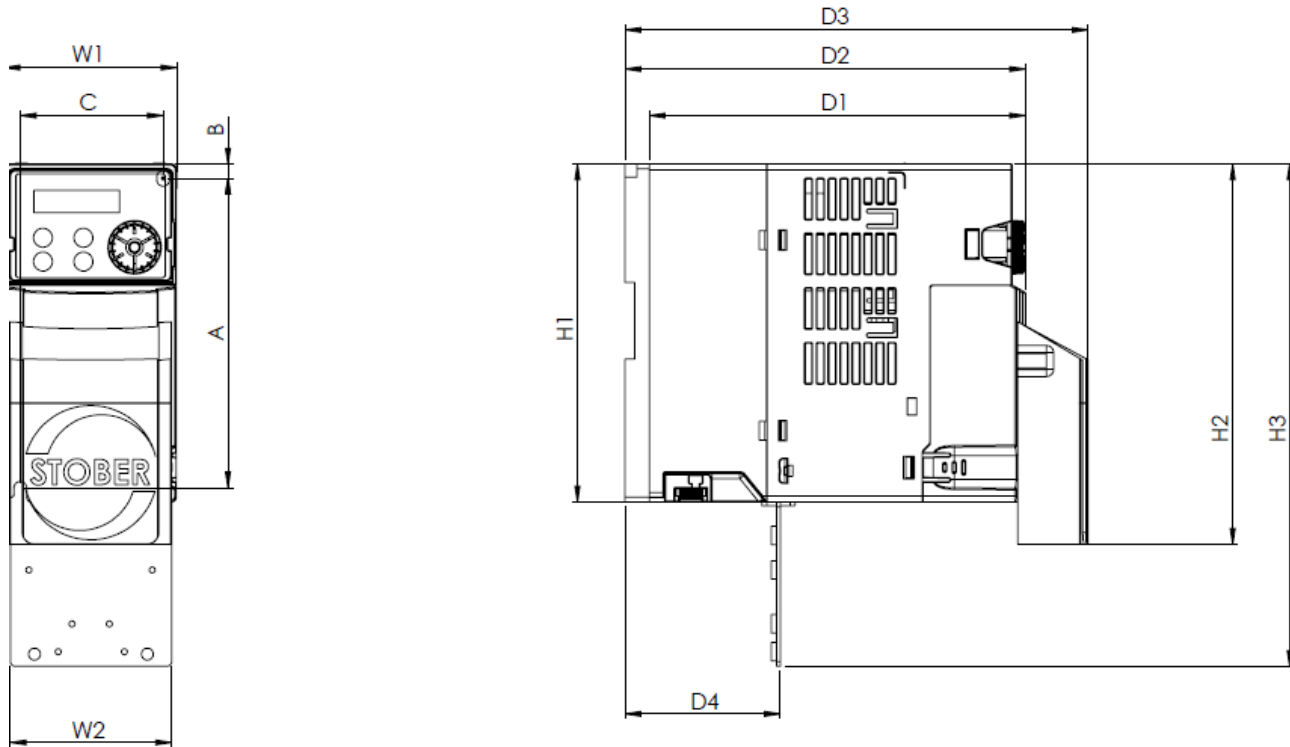
Part Number Example: **1** **2** **3** **4** **5** **6** **7** **8** **9** **0**  
**VFD** **5A0** **MH** **23** **A** **N** **S** **A** **A** **1**

Design Option	Part Number Code	Description
<b>1</b> Product Category	<b>VFD</b>	Variable Frequency Drive
<b>2</b> Rated Output Current	<b>5A0</b>	Rated output current (Ex: under heav duty mode, 150%, 60 seconds)
<b>3</b> Series	<b>MH</b>	Version of speed drive (Ex: MH300)
<b>4</b> Input Voltage	<b>23</b>	Options are 23 (230V 3-phase) or 43 (460V 3-phase)
<b>5</b> Protection Level	<b>A</b>	IP20
	<b>E</b>	IP40
<b>6</b> EMC Function	<b>N</b>	No function
	<b>F</b>	Built-in EMC filter
<b>7</b> Safety Function	<b>S</b>	Built-in STO
<b>8</b> Model Type	<b>A</b>	Standard
	<b>N</b>	Available for 3-phase 230V and 480V, 1HP drive without cooling fan
<b>9</b> Generation	<b>A</b>	Version Type
<b>0</b> Drive Horsepower*	<b>1</b>	1 HP
	<b>2</b>	2HP

\*Note: Drive Horsepower is added to "notes" section of order.

CLEAN System

## cLEAN Drive



**Table 1** cLEAN Drive – Dimensions (in)\*

Base Module	A	B	C	D1	D2	D3	D4	H1	H2	H3	W1	W2
CLM502	4.65	.22	2.20	5.91	6.22	7.36	2.41	5.04	5.73	7.83	2.67	2.73
CLM503	5.12	0.24	2.36	6.22	6.54	7.68	2.57	5.59	6.28	8.31	2.83	2.67

\*Dimensions for cLEAN Drive are the same for all communication protocols.

\*D3, D4, H2, H3 are all dimensions with optional accessories



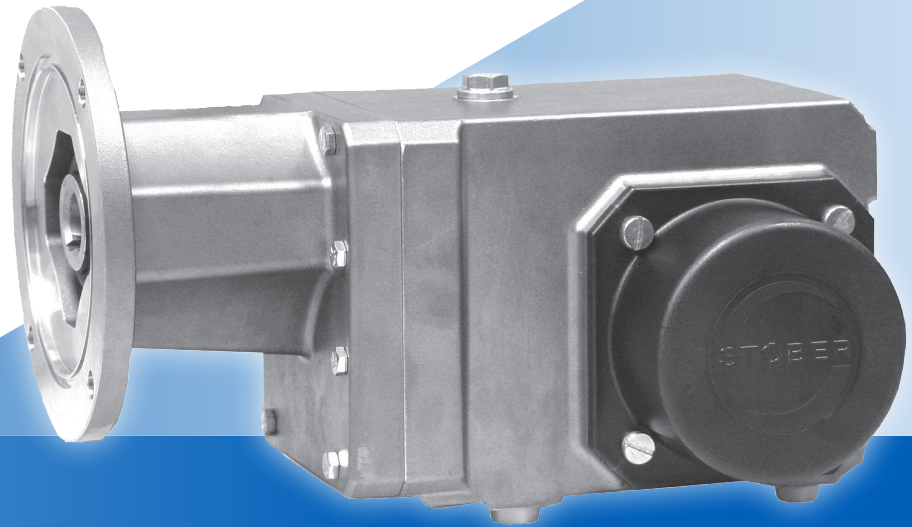


## KSS Series: RIGHT ANGLE — Solid Shaft/Hollow Output

### KSS Series Features

- Input rating up to 5 HP
- Ratio options 4:1 – 272:1
- Output torque capability up to 4872 lb-in
- NEMA input capabilities of 56C, 143/145TC, 182/184TC
- All stainless steel hardware
- Output bore diameters up to 1-1/2"
- Housing style options: feet, flange, torque arm bracket, or tapped holes

*The KSS Series utilizes our quality-proven, high-efficiency K Series helical/bevel speed reducer mechanics. Enclosed within a sealed, stainless steel housing, the KSS provides superior performance for food duty and severe wash down applications.*



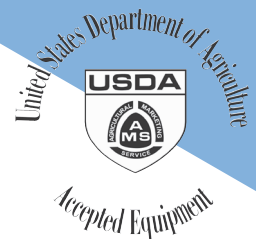
**SHIPS in  
1 DAY!**  
NO EXPEDITE FEE FOR 24  
HOUR SERVICE

### KSS Series Benefits

- No maintenance - totally enclosed with no breather to allow contaminants in or oil out
- Lubricated for life with Mobil SHC CIBUS 220 food grade oil
- No harborage point for bacteria because of our laser etched nameplate data
- Simple motor mounting and removal with Bowex coupling system
- Energy savings - up to 97% efficiency
- Easy installation and removal with our patented bushing system and any horizontal mounting position
- Reliability guaranteed with 3 year warranty
- Adaptability - mounting gear reducer from either machine side means stocking fewer options
- Durability - IP69K Certified to prevent water and dust ingress
- Assembled in USA

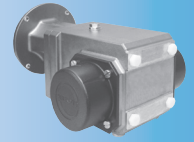
### The Optimum Food & Beverage Solution!

- Cast stainless steel housing outside; all stainless steel hardware inside
- Mobil SHC CIBUS 220 food grade oil
- Suitable for the most extreme wash down applications
- USDA Accepted Equipment/FDA compliant
- IP69K certified to prevent water and dust ingress (see page 6 for full details)



# Overview

# IP69K/STAINLESS STEEL



## KSS Ordering Options At-a-Glance

KSS Series are available in a wide range of user-selected design options that tailor the speed reducer to your motor and exact application requirements. Use the appropriate order codes below to build a part number for the complete assembly.

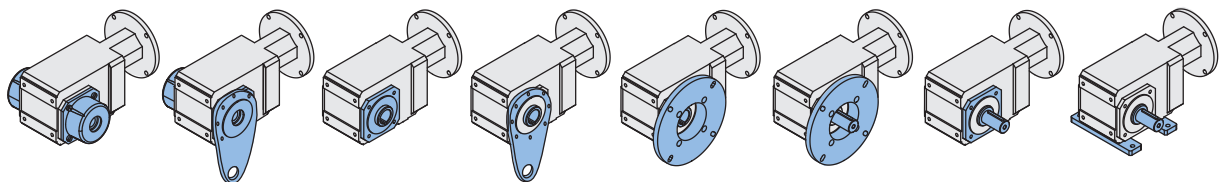
**Part Number Example:** 1 2 3 4 5 6 7 8 9 0\*

**Part Number Example:** KSS 1 0 2 W G 0040 MS1R 050 E1256

	Part Number		
Design Option	Code	Description	
<b>1 Series</b>	<b>KSS</b>	Stainless steel housing; right angle helical/bevel	
<b>2 Size</b>	<b>1 2 3 4</b>	4 sizes of speed reducers	
<b>3 Generation</b>	<b>0</b>	Version of speed reducers	
<b>4 # of Stages</b>	<b>2 3</b>	Two stage or three stage	
<b>5 Output</b>	<b>A</b>	Hollow bore output	
	<b>V</b>	Solid shaft output (specify side 3, 4 or double sided)	
	<b>W</b>	Double wobble-free bushing	
<b>6 Housing</b>	<b>F</b>	Round output flange (specify side 3 or 4)	
	<b>G</b>	Pilot Circle Diameter (PCD) tapped holes	
	<b>GD</b>	Torque arm bracket	
	<b>NG</b>	Foot mounting (specify side 1 or 5)	
<b>7 Ratio</b>	<b>0040</b>	Ratios range from 4:1 to 272:1 (refer to Selection Data tables)	
<b>8 Motor Adapter</b>	<b>MS1R</b>	For KSS1	
	<b>MS2R</b>	For KSS2	
	<b>MS3R</b>	For KSS3	
	<b>MS4R</b>	For KSS4	
<b>9 NEMA Frame Size</b>	<b>050</b>	56C	
	<b>140</b>	143/145TC	
	<b>180</b>	182/184TC	
<b>0 Mounting Position*</b>	<b>EL1256</b>	Mounting positions for 3 year warranty	
<i>Refer to page 52 illustrations</i>	<b>E34</b>		

\*Note: Mounting position is added to "notes" section of order.

## Output and Housing Configurations

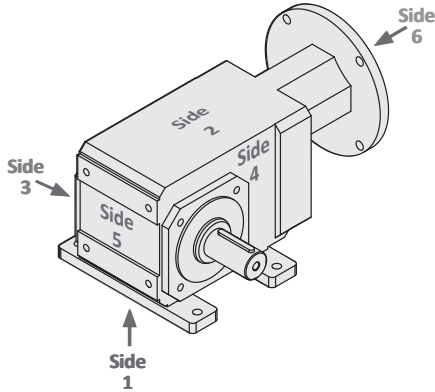


See Page	page 60	page 61	page 62	page 63	page 64	page 65	page 66	page 67
<b>Output</b>	<b>W</b> Double Bushing	<b>W</b> Double Bushing	<b>A</b> Hollow Bore	<b>A</b> Hollow Bore	<b>A</b> Hollow Bore	<b>V</b> Solid Shaft	<b>V</b> Solid Shaft	<b>V</b> Solid Shaft
<b>Housing</b>	<b>G</b> Tapped Holes	<b>GD</b> Torque Arm Bracket	<b>G</b> Tapped Holes	<b>GD</b> Torque Arm Bracket	<b>F</b> Round Flange	<b>F</b> Round Flange	<b>G</b> Tapped Holes	<b>NG</b> Foot Mount

KSS Series: RIGHT ANGLE — Solid Shaft / Hollow Output

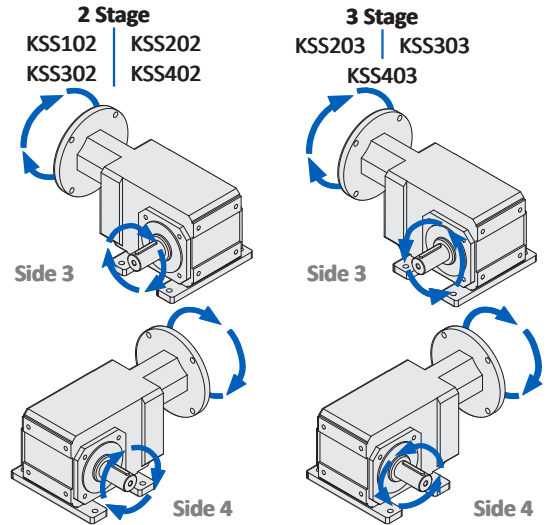
# KSS Series: RIGHT ANGLE — Solid Shaft/Hollow Output

## KSS Series Orientation



## KSS Series Direction of Rotation

Output available on side 3, 4 or both.  
 Note: With a double output, the shaft rotation of Side 3 will be the OPPOSITE direction of Side 4 when viewed from Side 5.



## KSS Series Output Options

BLUE: standard output diameters in stock  
 BLACK: optional diameters in stock

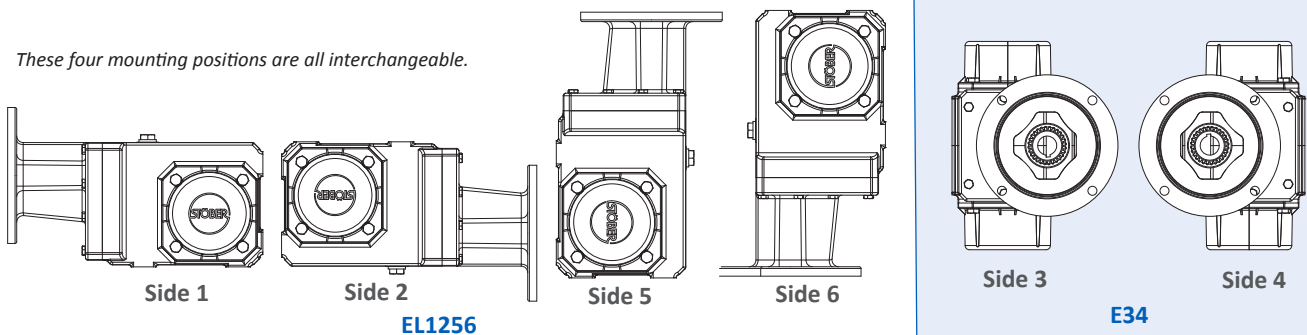
All Outputs Stainless Steel (Inches)		KSS1	KSS2	KSS3	KSS4
"V" Solid Shaft	Inches	1	1-1/4	1-1/4	1-3/8
"A" Hollow Bore	Inches	1	1-1/4	1-3/8	1-1/2
"W" Wobble Free Bushing	Inches	1	1 1-3/16 1-1/4 1-3/8 1-7/16 1-1/2	1 1-3/16 1-1/4 1-3/8 1-7/16 1-1/2	1-3/16 1-1/4 1-3/8 1-7/16 1-1/2
	Metric	25	30 35	30 35	40

## KSS Mounting Position Options

When ordering any KSS unit, the mounting position must be specified. Use one of the mounting position order codes illustrated below that corresponds to the intended application.

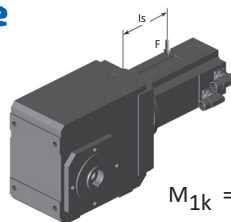
Note that KSS units are equipped with specialized seals, higher oil level, and additional features that enables all horizontal output positions to be used interchangeably.

These four mounting positions are all interchangeable.



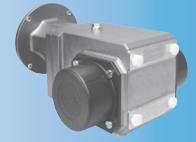
## Permissible Motor Tilting Torque

The permissible tilting torque of the motor attached to the gear unit is a result of the static and dynamic load "F" from the motor weight, mass acceleration, and vibration multiplied by the distance from the center of gravity "I<sub>s</sub>" of the motor.



$$M_{1k} = F \times I_s \leq M_{1K}$$

M <sub>1K</sub>	MS1R	MS2R	MS3R	MS4R
in.lbs	221	531	1106	2212



# Selection Data

# IP69K/STAINLESS STEEL

KSS Series: RIGHT ANGLE — Solid Shaft / Hollow Output

## KSS Sizing/Selection:

1. Find the **RPM Output (Approximate)** nearest the application requirement. (If the exact Output RPM is required, divide the Input RPM [1750] by the value listed in the Nominal Ratio column.)
- 2a. In the **Input HP** column, locate the rating that is greater than or equal to the required HP, or;
- 2b. If selection is based on Torque instead of HP, find an **Output Torque** that is equal to or greater than required.
3. Confirm that the **Overhung Load** is acceptable for the application.
4. Choose the appropriate **Base Module** and **Motor Adapter** part number code (see page 51 for complete ordering information).

1750 RPM Input		Nominal Ratio	Overhung Load Output Shaft <sup>1)</sup> (lbs)	Part Number Codes (in blue)		Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter
Input HP	Output Torque (lb-in)			Base Module	Motor Adapter	
<b>435 RPM Output (Approximate)</b>						
2.61	364	4.000	402	KSS102_0040	MS1R050	56C
7.00*	979	4.000	483	KSS202_0040	MS2R050	56C
					MS2R140	143/145TC
9.22*	1,289	4.000	563	KSS302_0040	MS3R050	56C
					MS3R140	143/145TC
					MS3R180	182/184TC
9.22	1,289	4.000	901	KSS402_0040	MS4R050	56C
					MS4R140	143/145TC
18.40*	2,572	4.000	901	KSS402_0040	MS4R180	182/184TC
<b>340 RPM Output (Approximate)</b>						
5.89*	1,067	5.177	526	KSS202_0052	MS2R050	56C
					MS2R140	143/145TC
<b>325 RPM Output (Approximate)</b>						
8.73*	1,640	5.375	621	KSS302_0054	MS3R050	56C
					MS3R140	143/145TC
10.07*	1,892	5.375	621	KSS302_0054	MS3R180	182/184TC
9.22	1,747	5.422	997	KSS402_0054	MS4R050	56C
					MS4R140	143/145TC
15.02*	2,847	5.422	997	KSS402_0054	MS4R180	182/184TC
<b>315 RPM Output (Approximate)</b>						
2.61	507	5.568	449	KSS102_0056	MS1R050	56C
<b>260 RPM Output (Approximate)</b>						
2.61	605	6.644	476	KSS102_0066	MS1R050	56C
<b>245 RPM Output (Approximate)</b>						
4.77	1,186	7.118	585	KSS202_0071	MS2R050	56C
					MS2R140	143/145TC

1) Overhung Load is measured at the center of the shaft extension. Hollow output units are not intended to support overhung loads. If a load rating is required, use 50% of the published overhung load.

2) Motor HP for TEFC NEMA C-Frame @ 1750 RPM

C-Frame	56C	143/145TC	182/184
HP	1/4 to 1-1/2	1 to 2	3 to 5

\* Thermal HP Limit

Base Module Size	KSS102	KSS202	KSS302	KSS402
HP Limit	2.95	5.36	7.38	12.34

# KSS Series: RIGHT ANGLE — Solid Shaft/Hollow Output

1750 RPM Input		Nominal Ratio	Overhung Load Output Shaft <sup>1)</sup> (lbs)	Part Number Codes (in blue)		Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter
Input HP	Output Torque (lb-in)			Base Module	Motor Adapter	
<b>235 RPM Output (Approximate)</b>						
8.14*	2,104	7.391	691	KSS302_0074	MS3R050	56C
					MS3R140	143/145TC
					MS3R180	182/184TC
9.22	2,402	7.456	1,109	KSS402_0075	MS4R050	56C
					MS4R140	143/145TC
12.04	3,166	7.456	1,109	KSS402_0075	MS4R180	182/184TC
<b>210 RPM Output (Approximate)</b>						
4.27	1,253	8.397	618	KSS202_0084	MS2R050	56C
					MS2R140	143/145TC
6.87	2,029	8.444	722	KSS302_0084	MS3R050	56C
					MS3R140	143/145TC
7.45	2,199	8.444	722	KSS302_0084	MS3R180	182/184TC
7.70	2,256	8.377	1,153	KSS402_0084	MS4R050	56C
					MS4R140	143/145TC
11.24	3,291	8.377	1,153	KSS402_0084	MS4R180	182/184TC
<b>190 RPM Output (Approximate)</b>						
2.24	725	9.249	532	KSS102_0092	MS1R050	56C
<b>170 RPM Output (Approximate)</b>						
2.11	747	10.140	548	KSS102_0100	MS1R050	56C
3.78	1,332	10.073	657	KSS202_0100	MS2R050	56C
					MS2R140	143/145TC
5.98	2,117	10.135	768	KSS302_0100	MS3R050	56C
					MS3R140	143/145TC
6.60	2,337	10.135	768	KSS302_0100	MS3R180	182/184TC
6.66	2,351	10.098	1,227	KSS402_0100	MS4R050	56C
					MS4R140	143/145TC
9.62	3,503	10.098	1,227	KSS402_0100	MS4R180	182/184TC

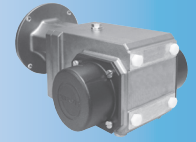
1) Overhung Load is measured at the center of the shaft extension. Hollow output units are not intended to support overhung loads. If a load rating is required, use 50% of the published overhung load.

2) Motor HP for TEFC NEMA C-Frame @ 1750 RPM

C-Frame	56C	143/145TC	182/184
HP	1/4 to 1-1/2	1 to 2	3 to 5

\* Thermal HP Limit

Base Module Size	KSS102	KSS202	KSS302	KSS402
HP Limit	2.95	5.36	7.38	12.34



# Selection Data

# IP69K/STAINLESS STEEL

1750 RPM Input		Nominal Ratio	Overhung Load Output Shaft <sup>1)</sup> (lbs)	Part Number Codes (in blue)		Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter
Input HP	Output Torque (lb-in)			Base Module	Motor Adapter	

### 150 RPM Output (Approximate)

3.45	1,394	11.546	687	KSS202_0115	MS2R050	56C
					MS2R140	143/145TC
6.02	2,445	11.610	803	KSS302_0115	MS3R050	56C
					MS3R140	143/145TC
					MS3R180	182/184TC
7.70	3,102	11.518	1,282	KSS402_0115	MS4R050	56C
9.09	3,660	11.518	1,282	KSS402_0115	MS4R140	143/145TC
					MS4R180	182/184TC

### 140 RPM Output (Approximate)

3.24	1,439	12.705	710	KSS202_0125	MS2R050	56C
					MS2R140	143/145TC
5.12	2,251	12.577	825	KSS302_0125	MS3R050	56C
					MS3R140	143/145TC
5.71	2,511	12.577	825	KSS302_0125	MS3R180	182/184TC
5.86	2,594	12.658	1,323	KSS402_0125	MS4R050	56C
					MS4R140	143/145TC
8.53	3,777	12.658	1,323	KSS402_0125	MS4R180	182/184TC

### 125 RPM Output (Approximate)

1.69	835	14.114	612	KSS102_0140	MS1R050	56C
3.06	1,481	13.851	730	KSS202_0140	MS2R050	56C
					MS2R140	143/145TC
5.33	2,599	13.935	854	KSS302_0140	MS3R050	56C
					MS3R140	143/145TC
					MS3R180	182/184TC
6.66	3,232	13.885	1,364	KSS402_0140	MS4R050	56C
					MS4R140	143/145TC
8.02	3,895	13.885	1,364	KSS402_0140	MS4R180	182/184TC

### 105 RPM Output (Approximate)

1.51	883	16.714	648	KSS102_0165	MS1R050	56C
4.03	2,389	16.939	911	KSS302_0170	MS3R050	56C
					MS3R140	143/145TC
4.68	2,774	16.939	911	KSS302_0170	MS3R180	182/184TC

1) Overhung Load is measured at the center of the shaft extension. Hollow output units are not intended to support overhung loads. If a load rating is required, use 50% of the published overhung load.

2) Motor HP for TEFC NEMA C-Frame @ 1750 RPM

C-Frame	56C	143/145TC	182/184
HP	1/4 to 1-1/2	1 to 2	3 to 5

KSS Series: RIGHT ANGLE — Solid Shaft / Hollow Output

# KSS Series: RIGHT ANGLE — Solid Shaft/Hollow Output

1750 RPM Input		Nominal Ratio	Overhung Load Output Shaft <sup>1)</sup> (lbs)	Part Number Codes (in blue)		Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter
Input HP	Output Torque (lb-in)			Base Module	Motor Adapter	
<b>100 RPM Output (Approximate)</b>						
2.62	1,600	17.469	789	KSS202_0175	MS2R050	56C
					MS2R140	143/145TC
4.62	2,793	17.293	917	KSS302_0175	MS3R050	56C
					MS3R140	143/145TC
					MS3R180	182/184TC
5.86	3,567	17.405	1,471	KSS402_0175	MS4R050	56C
					MS4R140	143/145TC
6.90	4,200	17.405	1,471	KSS402_0175	MS4R180	182/184TC

## 85 RPM Output (Approximate)

1.33	940	20.150	690	KSS102_0200	MS1R050	56C
2.37	1,683	20.327	830	KSS202_0200	MS2R050	56C
					MS2R140	143/145TC
3.56	2,526	20.278	967	KSS302_0200	MS3R050	56C
					MS3R140	143/145TC
4.15	2,945	20.278	967	KSS302_0200	MS3R180	182/184TC
4.03	2,849	20.197	1,546	KSS402_0200	MS4R050	56C
					MS4R140	143/145TC
6.25	4,413	20.197	1,546	KSS402_0200	MS4R180	182/184TC

## 75 RPM Output (Approximate)

1.21	986	23.265	723	KSS102_0230	MS1R050	56C
3.79	3,084	23.292	1,013	KSS302_0230	MS3R050	56C
					MS3R140	143/145TC
					MS3R180	182/184TC

## 70 RPM Output (Approximate)

0.96	851	25.220	743	KSS102_0250	MS1R050	56C
2.02	1,772	25.130	891	KSS202_0250	MS2R050	56C
					MS2R140	143/145TC
2.91	2,566	25.259	1,041	KSS302_0250	MS3R050	56C
					MS3R140	143/145TC
3.48	3,070	25.259	1,041	KSS302_0250	MS3R180	182/184TC
3.34	2,956	25.279	1,666	KSS402_0250	MS4R050	56C
					MS4R140	143/145TC
5.02	4,434	25.279	1,666	KSS402_0250	MS4R180	182/184TC

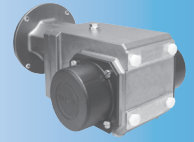
1) Overhung Load is measured at the center of the shaft extension. Hollow output units are not intended to support overhung loads. If a load rating is required, use 50% of the published overhung load.

2) Motor HP for TEFC NEMA C-Frame @ 1750 RPM

C-Frame	56C	143/145TC	182/184
HP	1/4 to 1-1/2	1 to 2	3 to 5

# Selection Data

# IP69K/STAINLESS STEEL



1750 RPM Input		Nominal Ratio	Overhung Load Output Shaft <sup>1)</sup> (lbs)	Part Number Codes (in blue)		Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter
Input HP	Output Torque (lb-in)			Base Module	Motor Adapter	

### 60 RPM Output (Approximate)

1.07	1,049	28.048	770	<b>KSS102_0280</b>	<b>MS1R050</b>	56C
1.81	1,772	27.950	923	<b>KSS202_0280</b>	<b>MS2R050</b>	56C
					<b>MS2R140</b>	143/145TC
3.18	3,100	27.883	1,076	<b>KSS302_0280</b>	<b>MS3R050</b>	56C
					<b>MS3R140</b>	143/145TC
					<b>MS3R180</b>	182/184TC
4.03	3,917	27.771	1,719	<b>KSS402_0280</b>	<b>MS4R050</b>	56C
					<b>MS4R140</b>	143/145TC
5.02	4,872	27.771	1,719	<b>KSS402_0280</b>	<b>MS4R180</b>	182/184TC

### 55 RPM Output (Approximate)

2.76	3,100	32.649	1,134	<b>KSS303_0330</b>	<b>MS3R050</b>	56C
					<b>MS3R140</b>	143/145TC
3.34	3,733	32.390	1,809	<b>KSS403_0320</b>	<b>MS4R050</b>	56C
					<b>MS4R140</b>	143/145TC

### 52 RPM Output (Approximate)

0.55	647	33.707	886	<b>KSS102_0340</b>	<b>MS1R050</b>	56C
1.16	1,364	33.618	1,063	<b>KSS202_0340</b>	<b>MS2R050</b>	56C
					<b>MS2R140</b>	143/145TC
1.89	2,217	33.618	1,240	<b>KSS302_0340</b>	<b>MS3R050</b>	56C
					<b>MS3R140</b>	143/145TC
2.62	3,084	33.678	1,833	<b>KSS402_0340</b>	<b>MS4R050</b>	56C
					<b>MS4R140</b>	143/145TC
2.93	3,445	33.678	1,833	<b>KSS402_0340</b>	<b>MS4R180</b>	182/184TC

### 50 RPM Output (Approximate)

0.87	1,063	35.105	895	<b>KSS102_0350</b>	<b>MS1R050</b>	56C
1.47	1,772	34.554	1,070	<b>KSS202_0350</b>	<b>MS2R050</b>	56C
					<b>MS2R140</b>	143/145TC
2.55	3,100	34.731	1,250	<b>KSS302_0350</b>	<b>MS3R050</b>	56C
					<b>MS3R140</b>	143/145TC
3.34	4,065	34.758	1,852	<b>KSS402_0350</b>	<b>MS4R050</b>	56C
					<b>MS4R140</b>	143/145TC
4.01	4,872	34.758	1,852	<b>KSS402_0350</b>	<b>MS4R180</b>	182/184TC

### 45 RPM Output (Approximate)

1.30	1,772	39.454	1,035	<b>KSS203_0390</b>	<b>MS2R050</b>	56C
2.30	3,100	39.187	1,288	<b>KSS303_0390</b>	<b>MS3R050</b>	56C
					<b>MS3R140</b>	143/145TC
3.34	4,500	39.047	1,926	<b>KSS403_0390</b>	<b>MS4R050</b>	56C
					<b>MS4R140</b>	143/145TC

1) Overhung Load is measured at the center of the shaft extension. Hollow output units are not intended to support overhung loads. If a load rating is required, use 50% of the published overhung load.

2) Motor HP for TEFC NEMA C-Frame @ 1750 RPM

C-Frame	56C	143/145TC	182/184
HP	1/4 to 1-1/2	1 to 2	3 to 5

KSS Series: RIGHT ANGLE — Solid Shaft / Hollow Output



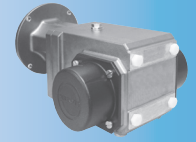
# KSS Series: RIGHT ANGLE — Solid Shaft/Hollow Output

1750 RPM Input		Nominal Ratio	Overhung Load Output Shaft <sup>1)</sup> (lbs)	Part Number Codes (in blue)		Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter
Input HP	Output Torque (lb-in)			Base Module	Motor Adapter	
<b>43 RPM Output (Approximate)</b>						
0.39	544	40.300	927	KSS102_0400	MS1R050	56C
1.20	1,705	40.512	1,299	KSS302_0410	MS3R050	56C
					MS3R140	143/145TC
1.93	2,729	40.512	1,950	KSS402_0410	MS4R050	56C
					MS4R140	143/145TC
<b>40 RPM Output (Approximate)</b>						
1.10	1,772	46.225	1,151	KSS202_0460	MS2R050	56C
					MS2R140	143/145TC
1.89	3,048	46.225	1,343	KSS302_0460	MS3R050	56C
					MS3R140	143/145TC
2.01	3,100	44.892	1,333	KSS303_0450	MS3R050	56C
					MS3R140	143/145TC
2.62	4,240	46.308	2,038	KSS402_0460	MS4R050	56C
					MS4R140	143/145TC
3.17	4,872	44.536	2,012	KSS403_0450	MS4R050	56C
					MS4R140	143/145TC
<b>35 RPM Output (Approximate)</b>						
0.55	900	46.918	963	KSS102_0470	MS1R050	56C
1.03	1,772	49.759	1,118	KSS203_0500	MS2R050	56C
1.85	3,100	48.631	1,360	KSS303_0490	MS3R050	56C
					MS3R140	143/145TC
2.89	4,872	48.944	2,076	KSS403_0490	MS4R050	56C
					MS4R140	143/145TC
<b>30 RPM Output (Approximate)</b>						
0.38	753	56.095	970	KSS102_0560	MS1R050	56C
0.95	1,772	54.25	1,151	KSS203_0540	MS2R050	56C
1.20	2,345	55.705	1,407	KSS302_0560	MS3R050	56C
					MS3R140	143/145TC
1.67	3,100	53.883	1,395	KSS303_0540	MS3R050	56C
					MS3R140	143/145TC
1.93	3,752	55.705	2,168	KSS402_0560	MS4R050	56C
					MS4R140	143/145TC
2.63	4,872	53.690	2,141	KSS403_0540	MS4R050	56C
					MS4R140	143/145TC

1) Overhung Load is measured at the center of the shaft extension. Hollow output units are not intended to support overhung loads. If a load rating is required, use 50% of the published overhung load.

2) Motor HP for TEFC NEMA C-Frame @ 1750 RPM

C-Frame	56C	143/145TC	182/184
HP	1/4 to 1-1/2	1 to 2	3 to 5



# Selection Data

# IP69K/STAINLESS STEEL

1750 RPM Input		Nominal Ratio	Overhung Load Output Shaft <sup>1)</sup> (lbs)	Part Number Codes (in blue)		Compatible NEMA C-Frame <sup>2)</sup> with Designated Motor Adapter
Input HP	Output Torque (lb-in)			Base Module	Motor Adapter	
<b>27 RPM Output (Approximate)</b>						
1.38	3,100	65.499	1,465	KSS303_0650	MS3R050	56C
					MS3R140	143/145TC
<b>25 RPM Output (Approximate)</b>						
0.75	1,772	68.419	1,244	KSS203_0680	MS2R050	56C
1.35	3,100	66.868	1,473	KSS303_0670	MS3R050	56C
					MS3R140	143/145TC
<b>22 RPM Output (Approximate)</b>						
0.65	1,772	79.615	1,308	KSS203_0800	MS2R050	56C
1.15	3,100	78.410	1,532	KSS303_0780	MS3R050	56C
					MS3R140	143/145TC
1.81	4,872	78.095	2,426	KSS403_0780	MS4R050	56C
					MS4R140	143/145TC
<b>19 RPM Output (Approximate)</b>						
1.00	3,100	90.061	1,575	KSS303_0900	MS3R050	56C
					MS3R140	143/145TC
<b>16 RPM Output (Approximate)</b>						
0.47	1,772	109.471	1,350	KSS203_1090	MS2R050	56C
0.84	3,100	107.814	1,575	KSS303_1080	MS3R050	56C
					MS3R140	143/145TC
1.32	4,872	107.381	2,520	KSS403_1070	MS4R050	56C
					MS4R140	143/145TC
<b>13 RPM Output (Approximate)</b>						
0.38	1,772	135.335	1,350	KSS203_1350	MS2R050	56C
0.67	3,100	134.292	1,575	KSS303_1340	MS3R050	56C
					MS4R050	56C
1.05	4,872	134.399	2,520	KSS403_1340	MS4R140	143/145TC
<b>10 RPM Output (Approximate)</b>						
0.28	1,772	181.048	1,350	KSS203_1810	MS2R050	56C
0.50	3,048	178.737	1,575	KSS303_1790	MS3R050	56C
					MS4R050	56C
0.77	4,737	179.056	2,520	KSS403_1790	MS4R050	56C
<b>8 RPM Output (Approximate)</b>						
0.51	3,752	215.391	2,520	KSS403_2150	MS4R050	56C

KSS Series: RIGHT ANGLE — Solid Shaft / Hollow Output

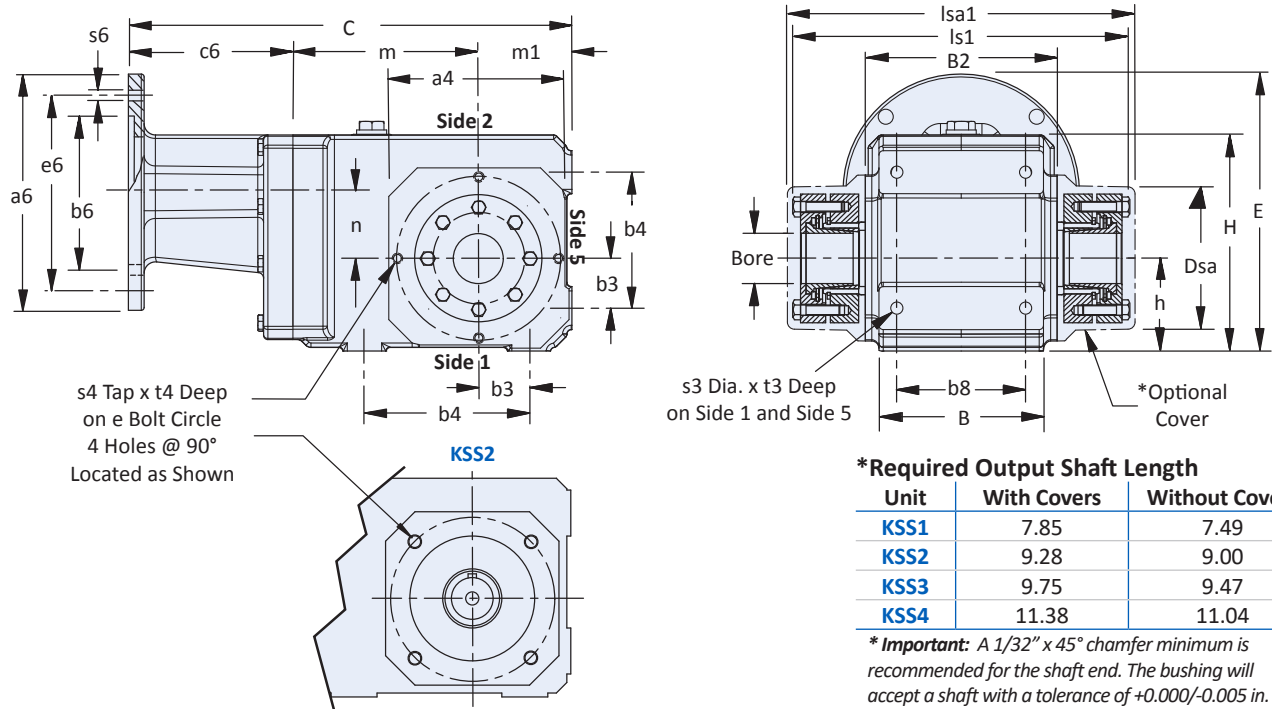
1) Overhung Load is measured at the center of the shaft extension. Hollow output units are not intended to support overhung loads. If a load rating is required, use 50% of the published overhung load.

2) Motor HP for TEFC NEMA C-Frame @ 1750 RPM

C-Frame	56C	143/145TC	182/184
HP	1/4 to 1-1/2	1 to 2	3 to 5

# KSS Series: RIGHT ANGLE — Solid Shaft/Hollow Output

## “W” Double Bushing Output with “G” Pilot Circle Diameter (PCD) Tapped Holes



### \*Required Output Shaft Length

Unit	With Covers	Without Covers
KSS1	7.85	7.49
KSS2	9.28	9.00
KSS3	9.75	9.47
KSS4	11.38	11.04

\* Important: A 1/32" x 45° chamfer minimum is recommended for the shaft end. The bushing will accept a shaft with a tolerance of +0.000/-0.005 in.

**Table 1 KSS Series – “W” Double Wobble-Free Bushing Output with “G” Pilot Circle Diameter (PCD) Tapped Holes – Dimensions (in)**

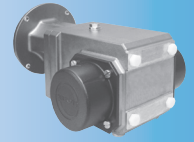
Base Module	a4	B2	b3	b4	b7	b8	Dsa	e	H	h	ls1	lsa1	m1	s3	s4	t3	t4
KSS1	4.53	4.17	1.18	3.54	2.95	2.76	3.07	3.54	4.96	2.36	7.64	7.80	2.36	M8x1.25	M8x1.25	0.51	0.51
KSS2	4.57	5.28	1.38	4.53	3.74	3.54	3.92	4.53	5.94	2.56	8.90	9.36	2.56	M10x1.50	M8x1.25	0.63	0.51
KSS3	5.20	5.75	1.38	5.12	4.13	4.13	3.78	4.53	6.56	2.95	9.41	9.95	2.95	M10x1.50	M8x1.25	0.63	0.55
KSS4	5.99	6.81	1.97	6.10	5.00	4.72	4.33	5.12	7.89	3.54	11.06	11.60	3.54	M12x1.75	M10x1.5	0.75	0.63

**Table 2 KSS Series – “WG” Style Motor Adapter Dimensions (in)**

Base Module	NEMA C-Face	a6	B	b6	C	c6	E	e6	m	n	s6	Wt. lbs
KSS102WG_MS1R050	56C	6.50	3.54	4.500	10.55	3.81	7.03	5.87	4.38	1.42	0.41	29
KSS202WG_MS2R050	56C	6.50	4.41	4.500	12.20	4.53	7.62	5.87	5.11	1.81	0.41	40
KSS202WG_MS2R140	143/145TC	6.50	4.41	4.500	12.20	4.53	7.62	5.87	5.11	1.81	0.41	40
KSS203WG_MS2R050	56C	6.50	4.53	4.500	13.07	3.31	6.64	5.87	7.20	0.83	0.41	53
KSS302WG_MS3R050	56C	6.50		4.500	13.23	4.37		5.87	5.91	2.09	0.41	55
KSS302WG_MS3R140	143/145TC	6.50	5.51	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302WG_MS3R180	182/184TC	9.00		8.500	14.57	6.59		7.25	5.03	2.07	0.55	67
KSS303WG_MS3R050	56C	6.50	5.51	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS303WG_MS3R140	143/145TC	6.50	5.51	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS402WG_MS4R050	56C	6.50		4.500	14.76	4.53	9.96	5.87			0.41	84
KSS402WG_MS4R140	143/145TC	6.50	5.71	4.500	14.76	4.53	9.96	5.87	6.69	2.36	0.41	84
KSS402WG_MS4R180	182/184TC	9.00		8.500	15.79	5.55	10.91	7.25			0.55	89
KSS403WG_MS4R050	56C	6.50	5.71	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94
KSS403WG_MS4R140	143/145TC	6.50	5.71	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94

**Table 3 “WFBSS” Double Side Bushings Stock Bore Sizes**

Base Module	Inches						Metric – mm
	1	1-3/16	1-1/4	1-3/8	1-7/16	1-1/2	40
KSS1	WFBSS1-100	—	—	—	—	—	—
KSS2	WFBSS2-100	WFBSS2-103	WFBSS2-104	WFBSS2-106	WFBSS2-107	WFBSS2-108	—
KSS3	WFBSS3-100	WFBSS3-103	WFBSS3-104	WFBSS3-106	WFBSS3-107	WFBSS3-108	—
KSS4	—	—	WFBSS4-104	—	WFBSS4-107	WFBSS4-108	—

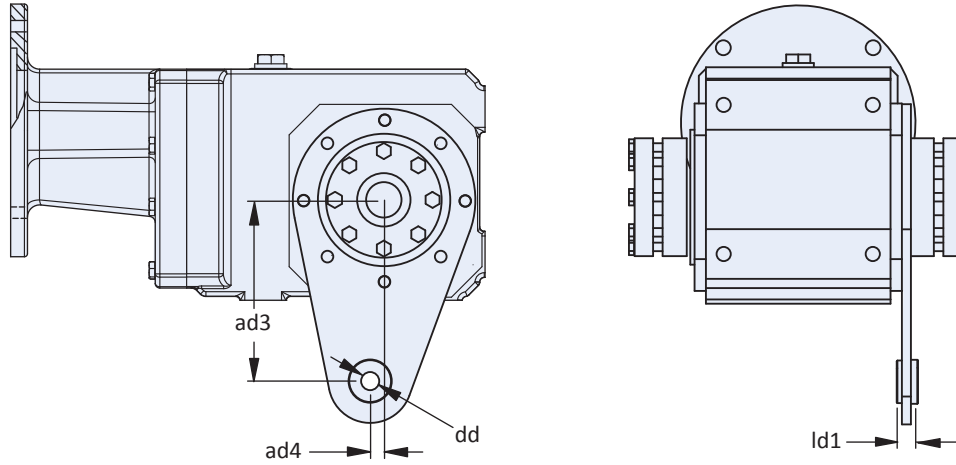


# Dimensional Data

# IP69K/STAINLESS STEEL

## “W” Double Bushing Output with “GD” Torque Arm Bracket

Refer to page 60 for all other dimensions



**Table 4 “GD” Torque Arm**

Base Module	Kit Number	mm			
		ad3	ad4	dd	ld1
KSS1	CS213227	130	10	13	15
KSS2	CS129573	130	10	13	15
KSS3	CS129573	130	10	13	15
KSS4	CS139679	130	10	13	15

Note: a bushing output plastic cover cannot be used on the Torque Arm side of speed reducer. A plastic cover can only be used on the side opposite the torque arm.

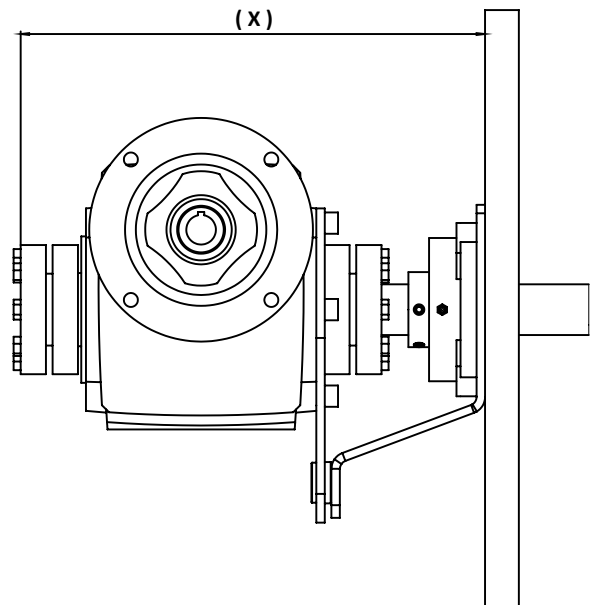
## “W” Double Bushing Output with torque arm stabilizer bracket

### KIT PART NUMBERS

- CS137450 (205 Flanged Bearing)
- CS137366 (207 Flanged Bearing)
- CS137367 (208 Flanged Bearing)

### Required Shaft Lengths

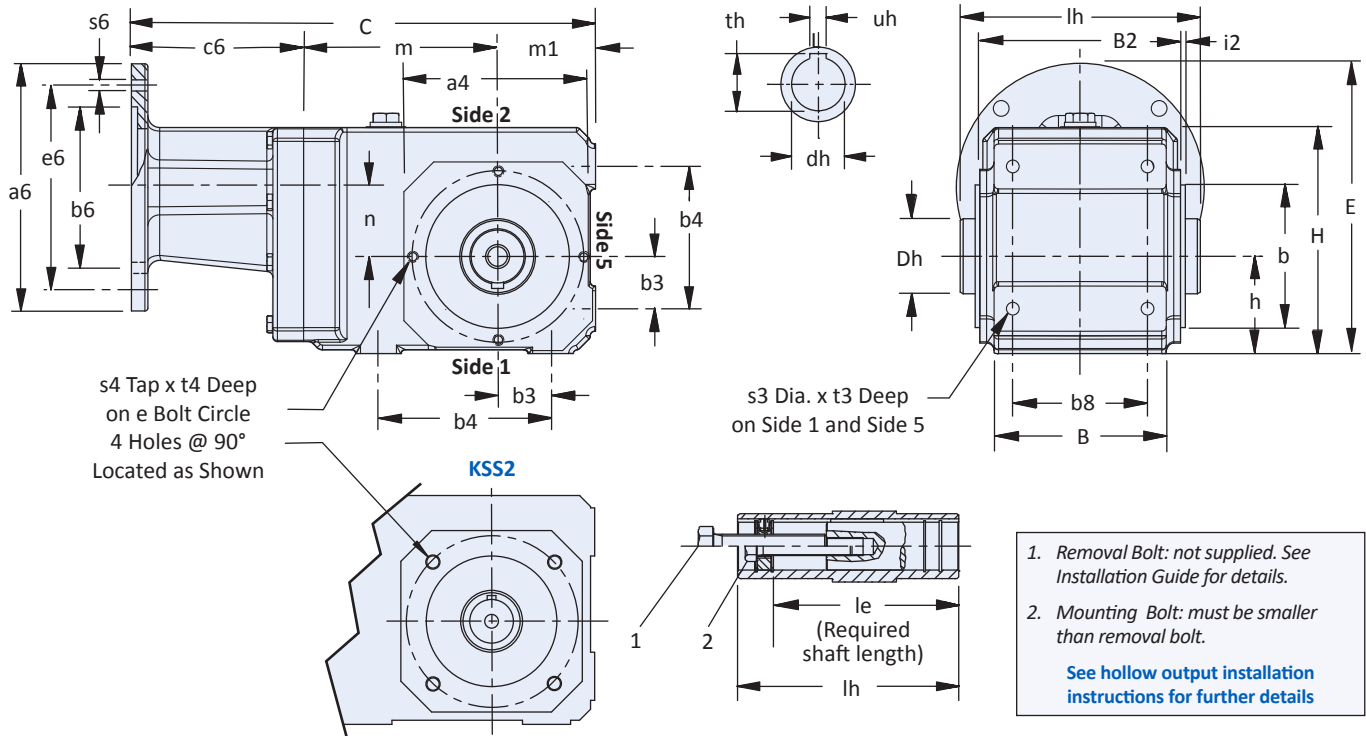
Unit/Flange Bearing	205	207	208
KSS1	10.20"	-	-
KSS2	11.4	11.43"	11.94"
KSS3	10.87	11.90"	10
KSS4	CS139679	130	10



KSS Series: RIGHT ANGLE — Solid Shaft / Hollow Output

# KSS Series: RIGHT ANGLE — Solid Shaft/Hollow Output

## “A” Hollow Bore Output with “G” Pilot Circle Diameter (PCD) Tapped Holes



**Table 1 KSS Series – “A” Hollow Output with “G” Pilot Circle Diameter (PCD) Tapped Holes – Dimensions (in)**

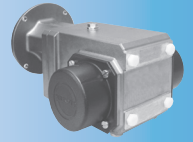
Base Module	a4	b	B2	b4	b7	b8	e	H	h	i2	lh	m1	s3	s4	t3	t4
KSS1	4.53	2.95	4.17	3.54	2.95	2.76	3.54	4.96	2.36	0.12	4.72	2.36	M8x1.25	M8x1.25	0.51	0.51
KSS2	4.57	3.74	5.28	4.53	3.74	3.54	4.53	5.94	2.56	0.12	5.83	2.56	M10x1.50	M8x1.25	0.63	0.51
KSS3	5.20	3.74	5.75	5.12	4.13	4.13	4.53	6.56	2.95	0.12	6.30	2.95	M10x1.50	M8x1.25	0.63	0.55
KSS4	5.99	4.33	6.81	6.10	5.00	4.72	5.12	7.89	3.54	0.14	7.40	3.54	M12x1.75	M10x1.5	0.75	0.63

**Table 2 KSS Series – “AG” Style Motor Adapter Dimensions (in)**

Base Module	NEMA C-Face	a6	B	b3	b6	C	c6	E	e6	m	n	s6	Wt. lbs
KSS102AG_MS1R050	56C	6.50	3.54	1.18	4.500	10.55	3.81	7.03	5.87	4.37	1.42	0.41	29
KSS202AG_MS2R050	56C	6.50	4.41	1.38	4.500	12.20	4.53	7.62	5.87	5.12	1.81	0.41	40
KSS202AG_MS2R140	143/145TC	6.50	4.41	1.38	4.500	12.20	4.53	7.62	5.87	5.12	1.81	0.41	40
KSS203AG_MS2R050	56C	6.50	4.53	1.54	4.500	13.07	3.31	6.64	5.87	7.20	0.83	0.41	53
KSS302AG_MS3R050	56C	6.50			4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302AG_MS3R140	143/145TC	6.50	5.51	1.38	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302AG_MS3R180	182/184TC	9.00			8.500	14.57	6.59	9.52	7.25	5.02	2.07	0.55	67
KSS303AG_MS3R050	56C	6.50	5.51	1.38	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS303AG_MS3R140	143/145TC	6.50	5.51	1.38	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS402AG_MS4R050	56C	6.50			4.500	14.76	4.53	9.66	5.87			0.41	84
KSS402AG_MS4R140	143/145TC	6.50	5.71	1.97	4.500	14.76	4.53	9.66	5.87	6.69	2.36	0.41	84
KSS402AG_MS4R180	182/184TC	9.00			8.500	15.79	5.55	10.91	7.25			0.55	89
KSS403AG_MS4R050	56C	6.50	5.71	1.97	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94
KSS403AG_MS4R140	143/145TC	6.50	5.71	1.97	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94

**Table 3 “A” Hollow Bore Output — Standard Sizes (see page 52 for other available output options)**

Base Module	Inches					
	Dh	dh	le	th	uh	Removal Bolt 1
KSS1	1.57	1	3.86	1.11	1/4	1/2 – 13
KSS2	1.97	1-1/4	4.78	1.37	1/4	1/2 – 13
KSS3	1.97	1-3/8	4.92	1.52	5/16	5/8 – 11
KSS4	2.17	1-1/2	6.18	1.67	3/8	3/4 – 10



“A” Hollow Bore Output with “GD” Torque Arm Bracket

Refer to page 62 for all other dimensions

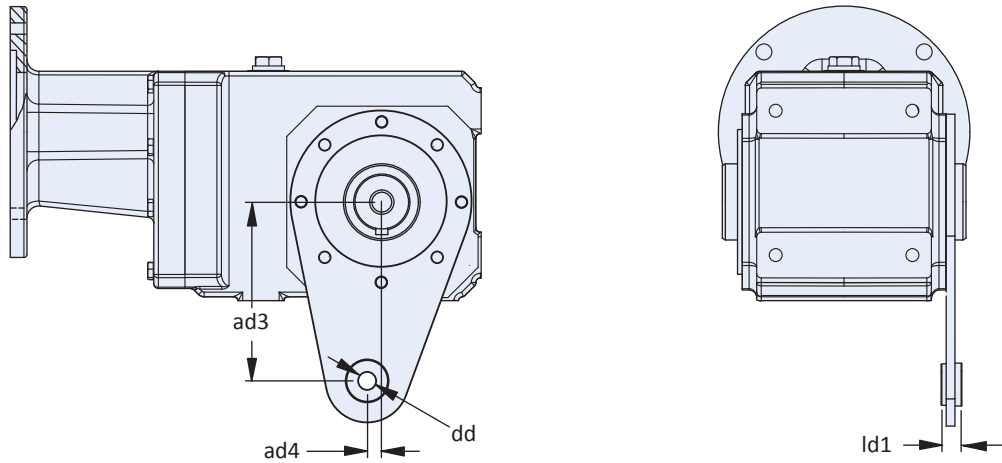


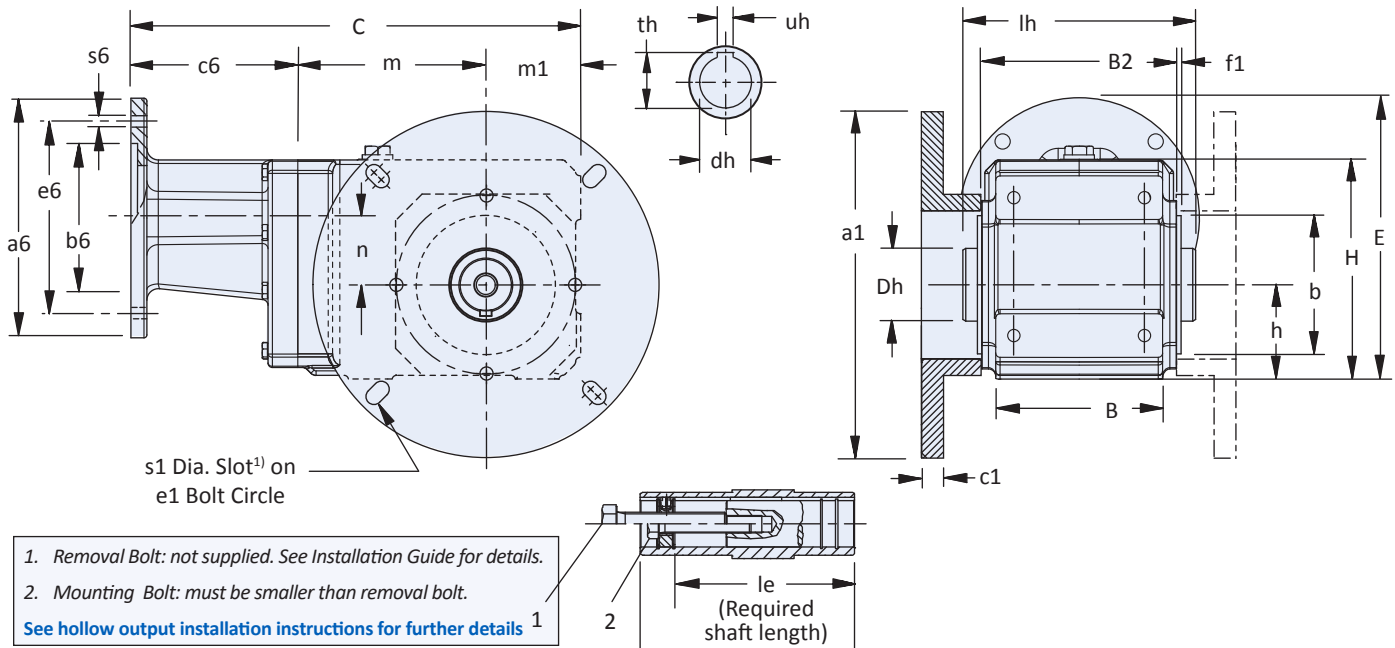
Table 4 “GD” Torque Arm

Base Module	Kit Number	mm			
		ad3	ad4	dd	ld1
KSS1	CS213227	130	10	13	15
KSS2	CS129573	130	10	13	15
KSS3	CS129573	130	10	13	15
KSS4	CS139679	130	10	13	15

KSS Series: RIGHT ANGLE — Solid Shaft / Hollow Output

# KSS Series: RIGHT ANGLE — Solid Shaft/Hollow Output

## “A” Hollow Bore Output with “F” Round Flange Housing



**Table 1 KSS Series – “A” Hollow Output with “F” Round Flange Housing – Dimensions (in)**

Base Module	a1	b	B2	c1	c2	e1		f1	H	h	lh	m1	s1 <sup>1)</sup>
						Min.	Max. <sup>1)</sup>						
KSS1	6.75	2.95	4.17	0.55	1.50	5.87	—	0.12	4.96	2.36	4.72	2.36	0.33
KSS2	8.74	3.74	5.28	0.55	1.50	7.48	8.00	0.12	5.94	2.56	5.28	2.56	0.41
KSS3	8.74	3.74	5.75	0.55	1.50	7.48	8.00	0.12	6.56	2.95	6.30	2.95	0.41
KSS4	9.84	4.33	6.81	0.55	1.50	8.46	—	0.14	7.89	3.54	7.40	3.54	0.53

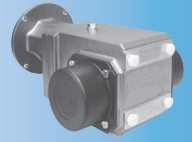
1) KSS1 & KSS4 mounting bolt hole is not a slot.

**Table 2 KSS Series – “AF” Style Motor Adapter Dimensions (in)**

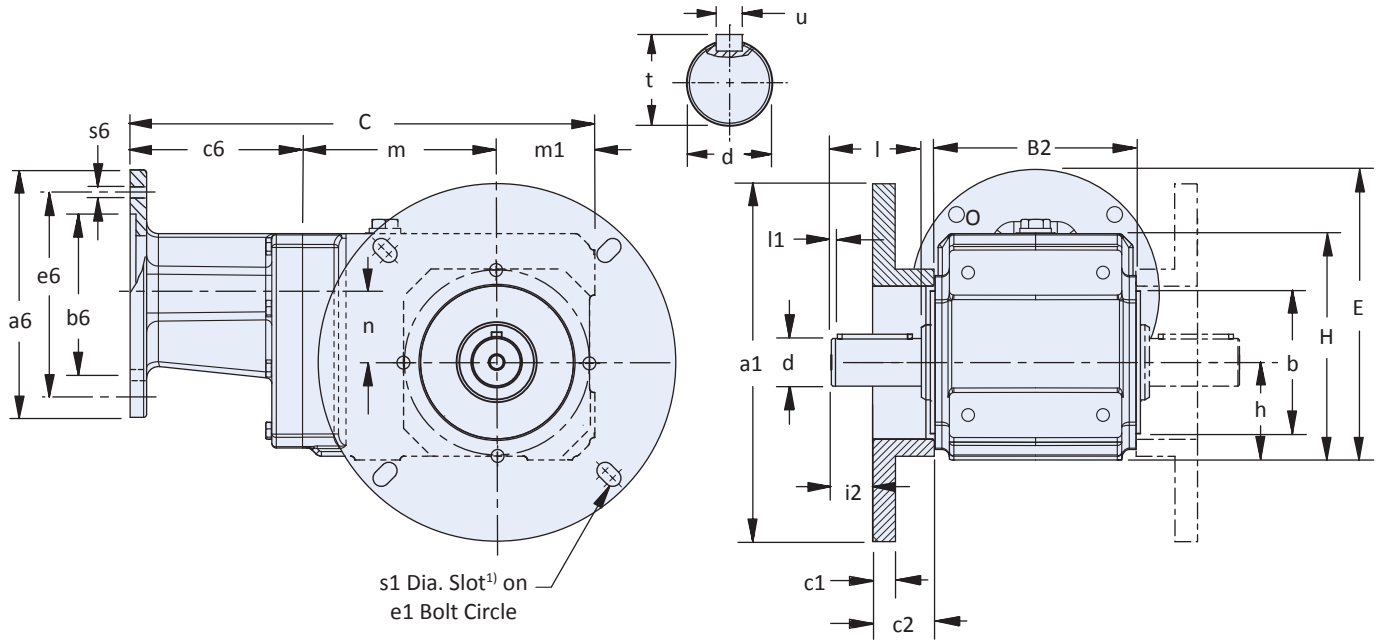
Base Module	NEMA C-Face	a6	B	b6	C	c6	E	e6	m	n	s6	Wt. lbs
KSS102AF_MS1R050	56C	6.50	3.54	4.500	10.09	3.81	7.03	5.87	4.38	1.42	0.41	29
KSS202AF_MS2R050	56C	6.50	4.41	4.500	12.20	4.53	7.62	5.87	5.11	1.81	0.41	40
KSS202AF_MS2R140	143/145TC											
KSS203AF_MS2R050	56C	6.50	4.53	4.500	13.07	3.31	6.64	5.87	7.20	1.81	0.41	53
KSS302AF_MS3R050	56C	6.50	5.51	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302AF_MS3R140	143/145TC											
KSS302AF_MS3R180	182/184TC	9.00		8.500	14.57	6.59	9.52	7.25	5.03	2.07	0.55	67
KSS303AF_MS3R050	56C	6.50	5.51	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS303AF_MS3R140	143/145TC											
KSS402AF_MS4R050	56C	6.50	5.71	4.500	14.76	4.53	9.96	5.87	6.69	2.36	0.41	84
KSS402AF_MS4R140	143/145TC											
KSS402AF_MS4R180	182/184TC	9.00		8.500	15.79	5.55	10.91	7.25			0.55	89
KSS403AF_MS4R050	56C	6.50	5.71	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94
KSS403AF_MS4R140	143/145TC											

**Table 3 “A” Hollow Bore Output — Standard Sizes** (see page 52 for other available output options)

Base Module	Inches						Removal Bolt 1
	Dh	dh	le	th	uh		
KSS1	1.57	1	3.86	1.11	1/4		1/2 – 13
KSS2	1.97	1-1/4	4.78	1.37	1/4		1/2 – 13
KSS3	1.97	1-3/8	4.92	1.52	5/16		5/8 – 11
KSS4	2.17	1-1/2	6.18	1.67	3/8		3/4 – 10



## “V” Solid Shaft Output with “F” Round Flange Housing



**Table 1** KSS Series – “V” Solid Shaft Output with “F” Round Flange Housing Dimensions (in)

Base Module	a1	b	B2	c1	c2	e1		H	h	i2	l	l1	m1	s1 <sup>1)</sup>
						Min.	Max. <sup>1)</sup>							
KSS1	6.75	2.95	4.17	0.55	1.50	5.87	—	4.96	2.36	0.94	1.97	0.16	2.36	0.33
KSS2	8.74	3.74	5.28	0.55	1.50	7.48	8.00	5.94	2.56	1.21	2.36	0.16	2.56	0.41
KSS3	8.74	3.74	5.75	0.55	1.50	7.48	8.00	6.56	2.95	1.21	2.36	0.16	2.95	0.41
KSS4	9.84	4.33	6.81	0.55	1.50	8.46	—	7.89	3.54	1.63	2.76	0.16	3.54	0.53

1) KSS1 & KSS4 mounting bolt hole is not a slot.

**Table 2** KSS Series – “VF” Style Motor Adapter Dimensions (in)

Base Module	NEMA C-Face	a6	b6	C	c6	E	e6	m	n	s6	Wt. lbs
KSS102VF_MS1R050	56C	6.50	4.500	10.55	3.81	7.03	5.87	4.38	1.42	0.41	29
KSS202VF_MS2R050	56C	6.50	4.500	12.20	4.53	7.62	5.87	5.11	1.81	0.41	40
KSS202VF_MS2R140	143/145TC										
KSS203VF_MS2R050	56C	6.50	4.500	13.07	3.31	6.64	5.87	7.20	0.83	0.41	53
KSS302VF_MS3R050	56C	6.50	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302VF_MS3R140	143/145TC	6.50	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302VF_MS3R180	182/184TC	9.00	8.500	14.57	6.59	9.52	7.25	5.03	2.07	0.55	67
KSS303VF_MS3R050	56C	6.50	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS303VF_MS3R140	143/145TC										
KSS402VF_MS4R050	56C	6.50	4.500	14.76	4.53	9.96	5.87	6.69	2.36	0.41	84
KSS402VF_MS4R140	143/145TC	6.50	4.500	14.76	4.53	9.96	5.87				
KSS402VF_MS4R180	182/184TC	9.00	8.500	15.79	5.55	10.91	7.25	5.03	2.07	0.55	89
KSS403VF_MS4R050	56C	6.50	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94
KSS403VF_MS4R140	143/145TC										

**Table 3** “V” Solid Shaft Output — Standard Sizes

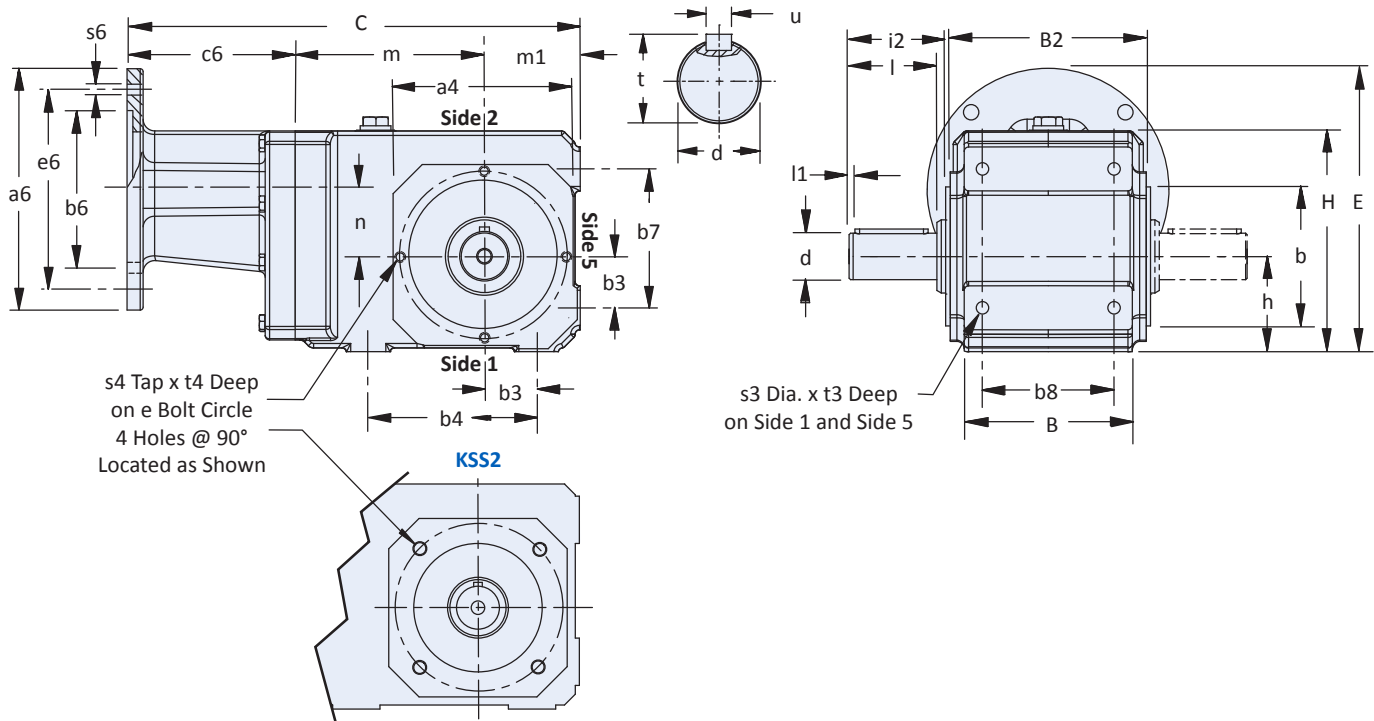
Base Module	Inches		
	d	t	u— Key
KSS1	1	1.11	1/4 x 1/4 x 1-9/16
KSS2	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS3	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS4	1-3/8	1.51	5/16 x 5/16 x 2-5/16

KSS Series: RIGHT ANGLE — Solid Shaft / Hollow Output



# KSS Series: RIGHT ANGLE — Solid Shaft/Hollow Output

## “V” Solid Shaft Output with “G” Pilot Circle Diameter (PCD) Tapped Holes



**Table 1 KSS Series – “V” Solid Shaft Output with “G” Pilot Circle Diameter (PCD) Tapped Holes – Dimensions (in)**

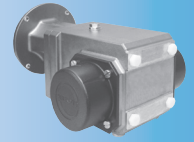
Base Module	a4	b	B2	b3	b4	b7	b8	e	H	h	i2	l	l1	m1	s3	s4	t3	t4
KSS1	4.53	2.95	4.17	1.18	3.54	2.95	2.76	3.54	4.96	2.36	2.32	1.97	0.16	2.36	M8x1.25	M8x1.25	0.51	0.51
KSS2	4.57	3.74	5.28	1.38	4.53	3.74	3.54	4.53	5.94	2.56	2.60	2.36	0.16	2.56	M10x1.50	M8x1.25	0.63	0.51
KSS3	5.20	3.74	5.75	1.38	5.12	4.13	4.13	4.53	6.56	2.95	2.60	2.36	0.16	2.95	M10x1.50	M8x1.25	0.63	0.55
KSS4	5.99	4.33	6.81	1.97	6.10	5.00	4.72	5.12	7.89	3.54	3.39	2.76	0.16	3.54	M12x1.75	M10x1.5	0.75	0.63

**Table 2 KSS Series – “VG” Style Motor Adapter Dimensions (in)**

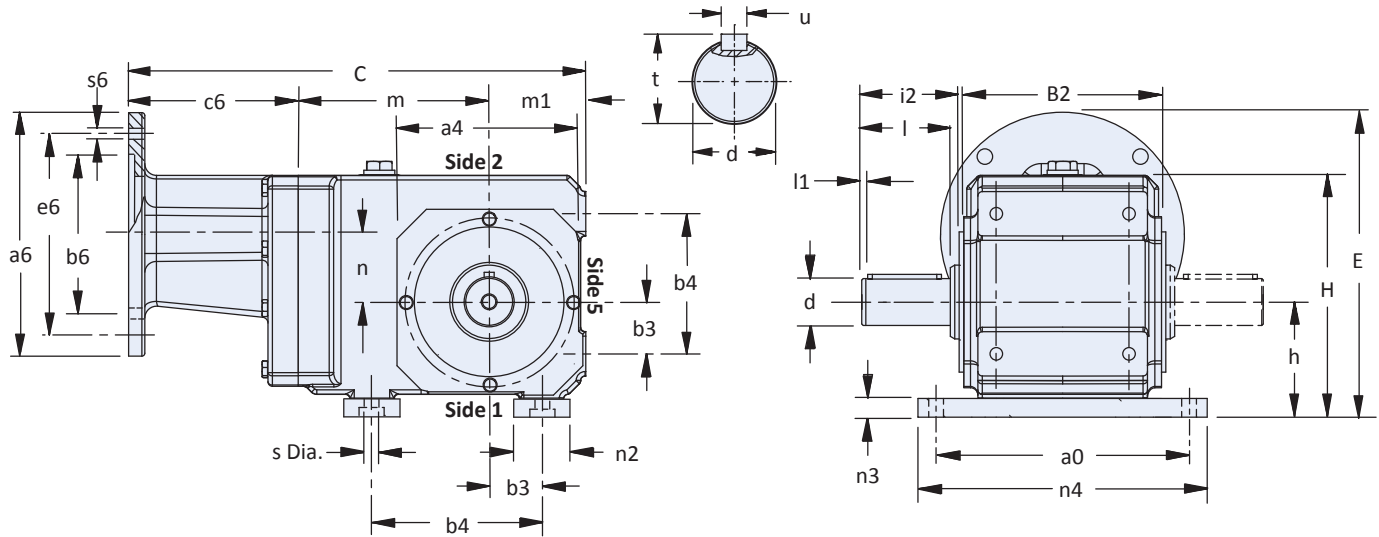
Base Module	NEMA C-Face	a6	B	b6	C	c6	E	e6	m	n	s6	Wt. lbs
KSS102VG_MS1R050	56C	6.50	3.54	4.500	10.55	3.81	7.03	5.87	4.38	1.42	0.41	29
KSS202VG_MS2R050	56C	6.50	4.41	4.500	12.20	4.53	7.62	5.87	5.11	1.81	0.41	40
KSS202VG_MS2R140	143/145TC	6.50	4.53	4.500	13.07	3.31	6.64	5.87	7.20	0.83	0.41	53
KSS203VG_MS2R050	56C	6.50	4.53	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302VG_MS3R050	56C	6.50	5.51	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302VG_MS3R140	143/145TC	6.50	5.51	4.500	13.23	4.37	8.29	5.87	5.91	2.09	0.41	55
KSS302VG_MS3R180	182/184TC	9.00	8.500	14.57	6.59	9.52	7.25	5.03	2.07	0.55	0.55	67
KSS303VG_MS3R050	56C	6.50	5.51	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS303VG_MS3R140	143/145TC	6.50	5.51	4.500	15.22	4.00	6.83	5.87	8.27	0.63	0.41	55
KSS402VG_MS4R050	56C	6.50	5.71	4.500	14.76	4.53	9.96	5.87	6.69	2.36	0.41	84
KSS402VG_MS4R140	143/145TC	6.50	5.71	4.500	14.76	4.53	9.96	5.87	6.69	2.36	0.41	84
KSS402VG_MS4R180	182/184TC	9.00	8.500	15.79	5.55	10.91	7.25	0.55	0.55	0.55	0.55	89
KSS403VG_MS4R050	56C	6.50	5.71	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94
KSS403VG_MS4R140	143/145TC	6.50	5.71	4.500	16.46	3.86	8.39	5.87	9.06	0.98	0.41	94

**Table 3 “V” Solid Shaft Output — Standard Sizes**

Base Module	Inches		
	d	t	u— Key
KSS1	1	1.11	1/4 x 1/4 x 1-9/16
KSS2	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS3	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS4	1-3/8	1.51	5/16 x 5/16 x 2-5/16



## “V” Solid Shaft Output with “NG” Foot Mount Housing



**Table 1** KSS Series – “V” Solid Shaft Output with “NG” Foot Mount – Dimensions (in)

Base Module	a0	a4	B2	b3	b4	b7	e	H	h	i2	l	l1	m1	n2	n3	n4	s
KSS1	4.53	4.53	4.17	1.18	3.54	2.95	3.54	5.46	2.36	2.32	1.97	0.16	2.36	1.50	0.50	5.51	0.35
KSS2	6.73	4.57	5.28	1.38	4.53	3.74	4.53	6.44	3.07	2.60	2.36	0.16	2.56	1.50	0.50	7.72	0.39
KSS3	6.73	5.20	5.75	1.38	5.12	4.13	4.53	7.06	3.44	2.60	2.36	0.16	2.95	1.50	0.50	7.72	0.39
KSS4	7.87	5.99	6.81	1.97	6.10	5.00	5.12	8.64	3.54	3.39	2.76	0.16	3.54	1.50	0.75	9.06	0.55

**Table 2** KSS Series – “VNG” Style Motor Adapter Dimensions (in)

Base Module	NEMA C-Face	a4	a6	b6	C	c6	E	e6	m	n	s6	Wt. lbs
KSS102VNG_MS1R050	56C	4.53	6.50	4.500	10.55	3.81	7.53	5.87	4.38	1.42	0.41	29
KSS202VNG_MS2R050	56C	4.57	6.50	4.500	12.20	4.53	8.12	5.87	5.11	1.81	0.41	40
KSS202VNG_MS2R140	143/145TC											
KSS203VNG_MS2R050	56C	4.57	6.50	4.500	13.07	3.31	7.14	5.87	7.20	0.83	0.41	53
KSS302VNG_MS3R050	56C		6.50	4.500	13.23	4.37	8.79	5.87	5.91	2.09	0.41	55
KSS302VNG_MS3R140	143/145TC	5.20	6.50	4.500	13.23	4.37	8.79	5.87	5.91	2.09	0.41	55
KSS302VNG_MS3R180	182/184TC		9.00	8.500	14.57	6.59	10.02	7.25	5.03	2.07	0.55	67
KSS303VNG_MS3R050	56C		6.50	4.500	15.22	4.00	7.33	5.87	8.27	0.63	0.41	55
KSS303VNG_MS3R140	143/145TC	5.20	6.50	4.500	15.22	4.00	7.33	5.87	8.27	0.63	0.41	55
KSS402VNG_MS4R050	56C		6.50	4.500	14.76	4.53	10.41	5.87			0.41	84
KSS402VNG_MS4R140	143/145TC	5.99	6.50	4.500	14.76	4.53	10.41	5.87	6.69	2.36	0.41	84
KSS402VNG_MS4R180	182/184TC		9.00	8.500	15.79	5.55	11.66	7.25			0.55	89
KSS403VNG_MS4R050	56C		6.50	4.500	16.46	3.86	9.14	5.87	9.06	0.98	0.41	94
KSS403VNG_MS4R140	143/145TC	5.99	6.50	4.500	16.46	3.86	9.14	5.87	9.06	0.98	0.41	94

**Table 3** “V” Solid Shaft Output — Standard Sizes

Base Module	Inches		
	d	t	u— Key
KSS1	1	1.11	1/4 x 1/4 x 1-9/16
KSS2	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS3	1-1/4	1.36	1/4 x 1/4 x 1-15/16
KSS4	1-3/8	1.51	5/16 x 5/16 x 2-5/16

KSS Series: RIGHT ANGLE — Solid Shaft / Hollow Output