

**dertec**<sup>®</sup>  
Designed to Perform

Stainless Steel  
**Helical Worm GEARBOXES.**

**FS(A)**



Dertec FSA Helical wormgear bevel gearboxes have been specifically developed with a view to hygiene and cleanability, With a design aims to minimize build-up of dirt the shape contributes to less accumulation and adhesion of contaminants and therefore simplifies cleaning.

Use of stainless steel also contributes to the reduced use of strong chemical cleaning agents, which benefits the surface water quality.

Dertec FSA series helical worm gears provide, by using a primary gear stage, relatively higher torque and improved efficiency over gearboxes based only on a worm gear. The improved efficiency of the drive reduces energy consumption.

Dertec FSA series are a robust version helical wormgearbox which traditionally is frequently used in the food industry.

FSA series are like the Dertec FKA, FR and FFA series interchangeable with cast iron drives with EURO dimensions.

The combination of bronze worm gears, hardened ground worm and grounded hardened gears in the primary gearstage ensure a long life and smooth running.

Dertec FSA series is available in 4 sizes with standard hollow shaft diameters of 20, 25, 30, 35, 40 and 45 mm.

The FSA serie is suitable for IEC motor mounting or equipped with an integrated stainless steel electric motor.

The maximum transmission ratio is 217.41: 1 and the maximum secondary torque is 520 Nm.

## Main features

Made of high quality carefully electro polished Stainless Steel AISI 316 (mirror Polished on request). The smooth design gives the gearbox a nice appearance, ready to suit all kinds of stainless steel machineries for the food industry.

### Hardened shaft

All hollow shafts are produced in Duplex Stainless Steel 2205. The special PNS surface treatment ensures enough hardness to collaborate with our Special High Temperature Resistant Blue Shaft Seals. The PNS treatment increases the lifetime of shaft / seal cooperation and helps to reduce wear on the shaft surface.

By this, the gearbox obtains a longer drip free operation compared to standard shaft / seal combinations made of SS304 with NBR or FKM. The use of above combination offers all the positive characteristics of stainless steel and the surface hardness of a hardened shaft.

### Blue shaft seals

Our high performance engineered shaft seals have a Blue colour. It is a well overthought feature for food industry applications. It might be clear that the colour "Blue" is a not existing organic colour. In the context of food safety it is a common use to embed blue colours as these are very visible and easily to be recognised by Vision scanning systems.

### Foodgrade lubrication

All gearboxes are standard equipped with NSH H1 certified Synthetic Foodgrade lubrication. On request it can be supplied with a Halal, Kosher or Nut Free certification.

### Engraved tagplate

To avoid dirt traps under the commonly used motor identification tagplate, all our motors and gearboxes are being equipped with a laser engraved tagplate. Besides for the food safety this also prevents against possible lost of information because of taking away the tagplate or loosing the tagplate from the driveparts.

## General specifications

- Standard ratio's 22.5 : 1 to 217.41 : 1
- IEC motor adaption versions (AM)
- Integrated motor versions (B5T..)
- Standard hollow shafts 20, 25, 30, 35, 40 & 45 mm
- Extra hygienic optional shaft covers. (open and closed version)
- Easy clean torque arm with built in elastic element to reduce mis alignment.
- Higher efficiency than a standard wormgearbox
- Optional output flanges available
- Stainless Steel AISI316
- Duplex stainless steel 2205 output shaft
- Interchangeable with Euro sizes
- Designed and produced in the Netherlands

As a part of our standard procedure every drive is tested in our production facility in the Netherlands to ensure correct functioning.



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Ratio's	From: 22.5 : 1 To: 157.43 : 1	Ratio's	From: 23.2 : 1 To: 201.00 : 1
Standard shaft	20 mm	Standard shaft	25 & 30 mm
Torque	Max. 92 Nm	Torque	Max. 170 Nm
Power	Max. 0.55 kW	Power	Max. 1.1 kW
FS(A) 58		FS(A) 68	
Ratio's	From: 23.2 : 1 To: 201.00 : 1	Ratio's	From: 26.93 : 1 To: 217.41 : 1
Standard shaft	30 & 35 mm	Standard shaft	40 & 45 mm
Torque	Max. 295 Nm	Torque	Max. 520 Nm
Power	Max. 1.5 kW	Power	Max. 3.0 kW



Torque Arms	
FSA 38	SS 085 MS L100
	SS 085 MS L110S
FSA 48	SS 095 MS L130S
	SS 095 MS L150
FSA 58	SS 115 MS L160S
	SS 115 MS L200
FSA 68	SS 130 MS L200

Easy Clean Closed Cover	
FSA 38	SS 085 CC
FSA 48	SS 095 CC
FSA 58	SS 115 CC
FSA 68	SS 130 CC

Easy Clean Open Cover	
FSA 38	SS 085 CO20
FSA 48	SS 095 CO25
FSA 58	SS 115 CO30
FSA 68	SS 130 CO45

Output Flanges	
FSA 38	SS 085 FL 125
FSA 48	SS 095 FL 160
FSA 58	SS 115 FL 200
FSA 68	SS 130 FL 250

# FSA Helical Worm Gearbox



## **Possible Geometrical Combinations**

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$n_2$ [Min <sup>-1</sup> ]	$M_{2max}$ [Nm]			$F_{r2}$ [N]	$i$	$\eta\%$			AM	B5TI	AM	B5TI	AM	B5TI
	2 pole	4 pole	6 pole			2 pole	4 pole	6 pole	63 / 71		80		90	
8.9	82	92	92	3000	157.43	57%	53%	50%	✓					
9.7	80	92	92	3000	144.40	57%	54%	51%	✓					
11	78	91	92	3000	122.94	58%	55%	52%	✓		✓			
13	76	88	92	3000	106.00	59%	56%	53%	✓		✓		✓	
14	75	87	92	3000	98.80	59%	56%	54%	✓		✓		✓	
16	72	86	92	3000	86.36	60%	57%	55%	✓		✓		✓	
17	72	85	92	3000	80.96	60%	58%	55%	✓		✓		✓	
20	70	84	91	3000	71.44	61%	59%	56%	✓		✓		✓	
22	67	82	89	3000	63.33	61%	60%	57%	✓		✓		✓	
25	72	81	91	3000	55.93	76%	73%	71%	✓					
26	53	80	87	3000	53.83	59%	61%	58%			✓		✓	
27	72	81	90	3000	51.30	76%	74%	72%	✓					
32	70	81	87	3000	43.68	77%	75%	73%	✓		✓		✓	
37	68	79	86	3000	37.66	78%	76%	74%	✓		✓		✓	
40	66	78	84	3000	35.10	78%	76%	74%	✓		✓		✓	
46	64	76	82	2870	30.68	78%	76%	75%	✓		✓		✓	
49	64	75	82	2800	28.76	78%	77%	75%	✓		✓		✓	
55	62	74	81	2660	25.38	79%	77%	76%	✓		✓		✓	
62	57	73	79	2530	22.50	79%	78%	76%	✓		✓		✓	

$P_{1n}$  =  
Rated Motor  
Power [kW]

$n_2$  =  
Output Speed  
[Min<sup>-1</sup>]

$M_{2n}$  =  
Rated Output torque  
[Nm]

$M_{2max}$  =  
Maximum permissible  
output torque [Nm]

$F_{r2}$  =  
Permitted Overhung  
Load Output Side [N]

$i$  = Gear unit Ratio  
 $\eta\%$  = Transmission  
Efficiency %

$fs$  = Service Factor

## FS(A) 48

$n_2$ [Min <sup>-1</sup> ]	$M_{2max}$ [Nm]			$F_{r2}$ [N]	$i$	$\eta\%$			AM	B5TI	AM	B5TI	AM	B5TI	AM	B5TI
	2 pole	4 pole	6 pole			2 pole	4 pole	6 pole	63 / 71		80		90		100	
7.0	150	170	185	5340	201.00	59%	55%	51%	✓							
7.6	150	170	183	5340	184.80	59%	56%	51%	✓							
8.9	150	170	180	5340	158.12	60%	57%	52%	✓	✓						
10	150	168	178	5350	137.05	61%	58%	53%	✓	✓		✓				
11	150	168	176	5350	128.10	62%	58%	54%	✓	✓		✓				
13	150	168	174	5350	110.73	63%	59%	55%	✓	✓		✓			✓	
15	146	168	172	5350	94.08	63%	60%	56%	✓	✓		✓			✓	
17	130	167	171	5360	84.00	63%	61%	57%	✓	✓		✓			✓	
20	107	167	171	5360	71.75	63%	62%	58%	✓	✓		✓			✓	
20	140	155	180	5370	69.39	78%	75%	71%	✓							
21	99	167	171	5360	67.20	62%	63%	58%	✓	✓		✓			✓	
22	140	155	180	5370	63.80	78%	75%	72%	✓							✓
25	75	165	171	5320	56.61	60%	64%	60%				✓			✓	
26	140	155	176	5150	54.59	79%	76%	73%	✓	✓						
30	140	155	175	4850	47.32	80%	77%	73%	✓	✓		✓				
32	140	155	175	4710	44.22	80%	77%	74%	✓	✓		✓				
37	139	155	173	4430	38.23	80%	78%	75%	✓	✓		✓			✓	
43	117	155	171	4120	32.48	80%	79%	75%	✓	✓		✓			✓	
48	104	155	171	3920	29.00	80%	79%	76%	✓	✓		✓			✓	
57	87	155	171	3650	24.77	80%	80%	77%	✓	✓		✓			✓	
60	79	152	171	3570	23.20	79%	80%	77%	✓	✓		✓			✓	

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$n_2$ [Min <sup>-1</sup> ]	$M_{2max}$ [Nm]			$F_{r2}$ [N]	$i$	$\eta\%$			AM	B5TI	AM	B5TI	AM	B5TI	AM	B5TI
	2 pole	4 pole	6 pole			2 pole	4 pole	6 pole	63 / 71		80		90		100	
	7.0	270	295			300	7130	201.00	62%	58%	55%	✓				
7.6	270	295	300	7130	184.80	63%	58%	55%	✓							
8.9	270	295	295	7130	158.12	64%	60%	56%	✓	✓						
10	270	295	295	7130	137.05	65%	61%	57%	✓	✓	✓					
11	270	295	295	7130	128.10	65%	61%	58%	✓	✓	✓					
13	255	295	295	7130	110.73	66%	62%	59%	✓	✓	✓	✓				
15	225	295	295	7130	94.08	67%	63%	60%	✓	✓	✓	✓	✓			
17	200	295	295	7130	84.00	67%	64%	61%	✓	✓	✓	✓	✓			
20	174	290	295	7170	71.75	67%	65%	62%	✓	✓	✓	✓	✓			
20	220	245	270	7520	69.39	80%	76%	74%	✓							
21	164	285	295	7220	67.20	67%	65%	63%	✓	✓	✓	✓	✓			
22	220	245	270	7520	63.80	80%	77%	75%	✓							
25	138	264	300	7370	56.61	67%	67%	64%			✓			✓		
26	220	245	270	7520	54.59	81%	78%	75%	✓	✓						
30	220	245	270	7520	47.32	81%	79%	76%	✓	✓	✓	✓	✓			
32	220	245	270	7520	44.22	81%	79%	77%	✓	✓	✓	✓	✓			
37	205	245	270	7320	38.23	82%	80%	77%	✓	✓	✓	✓	✓	✓		
43	180	245	270	6840	32.48	82%	80%	78%	✓	✓	✓	✓	✓	✓		
48	162	245	270	6520	29.00	82%	81%	79%	✓	✓	✓	✓	✓	✓		
57	139	245	270	6100	24.77	82%	81%	80%	✓	✓	✓	✓	✓	✓		
60	131	245	270	5930	23.20	82%	82%	80%	✓	✓	✓	✓	✓	✓		

$P_{1n}$  =  
Rated Motor  
Power [kW]

$n_2$  =  
Output Speed  
[Min<sup>-1</sup>]

$M_{2n}$  =  
Rated Output torque  
[Nm]

$M_{2max}$  =  
Maximum permissible  
output torque [Nm]

$F_{r2}$  =  
Permitted Overhung  
Load Output Side [N]

$i$  = Gear unit Ratio  
 $\eta\%$  = Transmission  
Efficiency %

$fs$  = Service Factor





## FS(A) 68

$n_2$ [Min <sup>-1</sup> ]	$M_{2max}$ [Nm]			$F_{r2}$ [N]	$i$	$\eta\%$			AM	B5T2	AM	B5T2	AM	B5T2	AM	B5T2	AM	B5T2
	2 pole	4 pole	6 pole			2 pole	4 pole	6 pole	63 / 71	80	90	100	112	132				
6.4	465	520	560	8680	217.41	65%	61%	58%	✓	✓								
7.4	465	520	560	8680	190.11	66%	62%	59%	✓	✓	✓							
7.8	465	520	555	8680	180.60	66%	62%	59%	✓	✓	✓							
8.8	465	520	555	8680	158.45	67%	63%	60%	✓	✓	✓	✓						
10	465	520	550	8680	134.40	68%	64%	61%	✓	✓	✓	✓	✓					
12	465	520	550	8680	121.33	68%	65%	62%	✓	✓	✓	✓	✓	✓				
13	465	520	550	8680	106.75	69%	66%	63%	✓	✓	✓	✓	✓	✓	✓			✓
14	465	520	550	8680	100.80	69%	66%	63%	✓	✓	✓	✓	✓	✓	✓			✓
16	400	520	550	8680	85.83	70%	67%	64%	✓	✓	✓	✓	✓	✓	✓			✓
18	365	520	550	8680	78.00	70%	68%	65%			✓	✓	✓	✓	✓			✓
19	435	480	525	9020	75.06	81%	79%	76%	✓	✓								
21	315	520	550	8680	67.57	69%	69%	66%				✓	✓					✓
21	435	480	525	9020	65.63	82%	79%	77%	✓	✓	✓							
22	435	480	525	9020	62.35	82%	79%	77%	✓	✓	✓							
24	270	500	550	8850	58.80	69%	69%	67%						✓				✓
26	435	480	525	8670	54.70	83%	80%	78%	✓	✓	✓	✓	✓					
30	435	480	525	8060	46.40	83%	81%	79%	✓	✓	✓	✓	✓	✓	✓			
33	430	480	525	7690	41.89	83%	81%	79%	✓	✓	✓	✓	✓	✓	✓			
38	380	480	525	7250	36.85	84%	82%	80%	✓	✓	✓	✓	✓	✓	✓			✓
40	365	480	525	7060	34.80	84%	82%	80%	✓	✓	✓	✓	✓	✓	✓			✓
47	310	480	525	6540	29.63	84%	83%	81%	✓	✓	✓	✓	✓	✓	✓			✓
52	280	480	525	6240	26.93	84%	83%	81%		✓	✓	✓	✓	✓	✓			✓



## **Gearbox Selection Tables**

$P_{1n}$ [kW]	$n_2$ min-1	$M_{2n}$ [Nm]	$i$	$F_{r2}$ [N]	$f_s$					
0.12	8.8	74	157.43	3000	1.25	FS(A)38 AM63 FS(A)38 B5T1	631-4 B5 631-4 B5T1			
	9.6	68	144.40	3000	1.35					
	11	60	122.94	3000	1.55					
	13	52	106.00	3000	1.70					
	14	49	98.80	3000	1.75					
	16	44	86.36	3000	1.95					
	17	41	80.96	3000	2.10					
	19	37	71.44	3000	2.30					
	22	33	63.33	3000	2.50					
	25	35	55.93	3000	2.30					
	27	33	51.30	3000	2.50					
	32	28	43.68	3000	2.90					
	37	25	37.66	3000	3.20					
	39	23	35.10	3000	3.40					
	45	20	30.68	3000	3.70					
	48	19	28.76	3000	3.90					
	54	17	25.38	3000	4.40					
	61	15	22.50	3000	4.80					
	0.12	6.9	95	201.00	5680			1.80	FS(A)48 AM63 FS(A)48 B5T1	631-4 B5 631-4 B5T1
		7.5	89	184.80	5700			1.90		
8.7		77	158.12	5740	2.20					
10		68	137.05	5780	2.50					
11		64	128.10	5790	2.60					
12		57	110.73	5810	3.00					
0.18	11	93	122.94	3000	1.00	FS(A)38 AM63 FS(A)38 B5T1	632-4 B5 632-4 B5T1			
	12	82	106.00	3000	1.10					
	13	77	98.80	3000	1.15					
	15	68	86.36	3000	1.25					
	16	64	80.96	3000	1.30					
	18	58	71.44	3000	1.45					
	21	52	63.33	3000	1.60					
	24	55	55.93	3000	1.45					
	26	51	51.30	3000	1.60					
	30	44	43.68	3000	1.85					
	35	38	37.66	3000	2.10					
	38	36	35.10	3000	2.20					
	43	32	30.68	3000	2.40					
	46	30	28.76	3000	2.50					
	52	27	25.38	3000	2.80					
59	24	22.50	3000	3.10						

$P_{1n}$  =  
Rated Motor  
Power [kW]

$n_2$  =  
Output Speed  
[Min<sup>-1</sup>]

$M_{2n}$  =  
Rated Output torque  
[Nm]



$M_{2max}$  =  
Maximum permissible  
output torque [Nm]

$F_{r2}$  =  
Permitted Overhung  
Load Output Side [N]

$i$  = Gear unit Ratio  
 $\eta$  % = Transmission  
Efficiency %

$f_s$  = Service Factor

$P_{1n}$ [kW]	$n_2$ min-1	$M_{2n}$ [Nm]	$i$	$F_{r2}$ [N]	$f_s$		
0.18	6.6	149	201.00	5440	1.15	FS(A)48 AM63 FS(A)48 B5T1	632-4 B5 632-4 B5T1
	7.1	138	184.80	5490	1.25		
	8.3	121	158.12	5570	1.40		
	9.6	107	137.05	5630	1.60		
	10	100	128.10	5660	1.65		
	12	88	110.73	5700	1.90		
	14	77	94.08	5750	2.20		
	16	69	84.00	5770	2.40		
	18	60	71.75	5800	2.80		
	19	69	69.39	5750	2.20		
	5.5	173	158.12	5320	1.00	FS(A)48 AM71 FS(A)48 B5T1	711-6 B5 711-6 B5T1
	6.4	153	137.05	5420	1.10	FS(A)58 AM63 FS(A)58 B5T1	632-4 B5 632-4 B5T1
	6.8	144	128.10	5470	1.20		
	6.6	154	201.00	8010	1.90		
	7.1	143	184.80	8050	2.10	FS(A)58 AM71 FS(A)58 B5T1	711-6 B5 711-6 B5T1
	8.3	125	158.12	8120	2.40		
	9.6	110	137.05	8160	2.70	FS(A)68 AM71 FS(A)68 B5T2	711-6 B5 711-6 B5T2
	4.3	220	201.00	7670	1.35		
	4.7	205	184.80	7760	1.45		
	5.5	180	158.12	7900	1.65		
6.4	159	137.05	7990	1.85	FS(A)38 AM71 FS(A)38 B5T1	711-4 B5 711-4 B5T1	
4.0	255	217.41	10300	2.20			
4.6	225	190.11	10400	2.50			
4.8	215	180.60	10400	2.60			
0.25	18	81	71.44	3000	1.05	FS(A)48 AM71 FS(A)48 B5T1	711-4 B14a 711-4 B5T1
	21	73	63.33	3000	1.10		
	23	78	55.93	3000	1.05		
	25	72	51.30	3000	1.15		
	30	62	43.68	3000	1.30		
	35	54	37.66	3000	1.45		
	37	51	35.10	3000	1.55		
	42	45	30.68	3000	1.70		
	45	42	28.76	3000	1.80		
	51	37	25.38	3000	2.00		
	58	33	22.50	3000	2.20		
	8.2	170	158.12	5340	1.00	FS(A)48 AM71 FS(A)48 B5T1	
	9.5	150	137.05	5440	1.10		
	10	141	128.10	5480	1.20		
	12	124	110.73	5560	1.35		
	14	108	94.08	5630	1.55		
	15	98	84.00	5670	1.70		
	18	85	71.75	5720	1.95		
	19	97	69.39	5640	1.60		
	19	80	67.20	5740	2.10		
20	90	63.80	5670	1.70			
24	78	54.59	5720	2.00			
27	68	47.32	5760	2.30			

$P_{1n}$ [kW]	$n_2$ min <sup>-1</sup>	$M_{2n}$ [Nm]	$i$	$F_{r2}$ [N]	$f_s$		
0.25	6.5	215	201.00	7700	1.35	FS(A)58 AM71 FS(A)58 B5T1	711-4 B5 711-4 B5T1
	7.0	200	184.80	7790	1.45		
	8.2	176	158.12	7920	1.70		
	9.5	155	137.05	8010	1.90		
	10	146	128.10	8040	2.00		
	12	129	110.73	8110	2.30		
	14	111	94.08	8160	2.70		
	15	101	84.00	8190	2.90	FS(A)58 AM71 FS(A)58 B5T1	712-6 B5 712-6 B5T1
	4.4	305	201.00	7050	1.00		
	4.8	285	184.80	7230	1.05		
	5.6	245	158.12	7510	1.20		
	6.4	220	137.05	7690	1.35		
	6.9	205	128.10	7760	1.45	FS(A)68 AM71 FS(A)68 B5T2	711-4 B5 711-4 B5T2
	6.0	245	217.41	10300	2.10		
	6.8	220	190.11	10400	2.40		
	7.2	210	180.60	10500	2.50		
	8.2	187	158.45	10500	2.80		
	9.7	161	134.40	10600	3.20		
	11	147	121.33	10600	3.50		
	12	131	106.75	10700	4.00	FS(A)68 AM71 FS(A)68 B5T2	712-6 B5 712-6 B5T2
4.0	350	217.41	9890	1.60			
4.6	310	190.11	10100	1.80			
4.9	295	180.60	10100	1.90			
5.5	265	158.45	10300	2.10			
3.1	435	217.41	9350	1.30	FS(A)68 AM80 FS(A)68 B5T2	802-8 B14a 802-8 B5T2	
3.6	390	190.11	9670	1.45			
3.8	370	180.60	9770	1.50			
4.3	330	158.45	9980	1.70			
0.37	37	76	37.66	3000	1.05	FS(A)38 AM71 FS(A)38 B5T1	712-4 B5 712-4 B5T1
	39	71	35.10	3000	1.10		
	45	63	30.68	3000	1.20		
	48	59	28.76	3000	1.30		
	54	52	25.38	2940	1.40		
	61	47	22.50	2870	1.55		
	15	151	94.08	5430	1.10	FS(A)48 AM71 FS(A)48 B5T1	712-4 B5 712-4 B5T1
	16	137	84.00	5500	1.20		
	19	119	71.75	5580	1.40		
	20	136	69.39	5460	1.15		
	21	112	67.20	5610	1.50		
	22	126	63.80	5510	1.25		
	25	109	54.59	5590	1.40		
	29	96	47.32	5410	1.60		
	31	90	44.22	5330	1.75		
	36	78	38.23	5140	2.00		
	42	67	32.48	4930	2.30		
	48	60	29.00	4790	2.60		
	56	52	24.77	4590	3.00		
59	49	23.20	4510	3.10			

$P_{1n}$  =  
Rated Motor  
Power [kW]

$n_2$  =  
Output Speed  
[Min<sup>-1</sup>]


$M_{2n}$  =  
Rated Output torque  
[Nm]



$M_{2max}$  =  
Maximum permissible  
output torque [Nm]

$F_{r2}$  =  
Permitted Overhung  
Load Output Side [N]

$i$  = Gear unit Ratio  
 $\eta$  % = Transmission  
Efficiency %

$f_s$  = Service Factor

$P_{1n}$ [kW]	$n_2$ min-1	$M_{2n}$ [Nm]	$i$	$F_{r2}$ [N]	$f_s$			
0.37	7.5	285	184.80	7230	1.05	FS(A)58 AM71 FS(A)58 B5T1	712-4 B5 712-4 B5T1	
	8.7	245	158.12	7510	1.20			
	10	220	137.05	7690	1.35			
	11	205	128.10	7770	1.45			
	12	180	110.73	7900	1.65			
	15	156	94.08	8000	1.90			
	16	141	84.00	8060	2.10			
	19	122	71.75	8130	2.40			
	20	139	69.39	8070	1.75			
	21	115	67.20	8150	2.50			
	22	128	63.80	8110	1.90			
	7.0	300	128.10	7100	1.00	FS(A)58 AM80 FS(A)58 B5T1	801-6 B14a 801-6 B5T1	
	8.1	265	110.73	7390	1.10			
	9.6	230	94.08	7630	1.30			
	11	205	84.00	7760	1.45	FS(A)68 AM71 FS(A)68 B5T2	712-4 B5 712-4 B5T2	
	6.4	345	217.41	9900	1.50			
	7.3	310	190.11	10100	1.70			
	7.6	295	180.60	10200	1.75			
	8.7	260	158.45	10300	2.00			
	10	225	134.40	10400	2.30			
11	205	121.33	10500	2.50	FS(A)68 AM80 FS(A)68 B5T2	801-6 B14a 801-6 B5T2		
4.1	505	217.41	8810	1.10				
4.7	450	190.11	9260	1.25				
5.0	430	180.60	9400	1.30				
5.7	380	158.45	9700	1.45	FS(A)38 AM - FS(A)38 B5T1	801-4 B14a - 801-4 B5T1		
60	70	22.50	2600	1.05				
20	169	67.20	5350	1.00				
29	144	47.32	5010	1.10				
31	135	44.22	4950	1.15				
36	118	38.23	4810	1.30				
42	101	32.48	4650	1.55				
47	91	29.00	4540	1.70				
55	78	24.77	4380	2.00				
59	74	23.20	4310	2.10				
12	270	110.73	7320	1.10			FS(A)48 AM80 FS(A)48 B5T1	801-4 B14a 801-4 B5T1
14	235	94.08	7590	1.25				
16	210	84.00	7730	1.40				
19	184	71.75	7880	1.55				
20	174	67.20	7930	1.65				
25	167	54.59	7960	1.45				
29	146	47.32	8040	1.70				
31	137	44.22	8080	1.80				
36	120	38.23	8130	2.10				
42	103	32.48	7970	2.40				
47	92	29.00	7730	2.70				
55	79	24.77	7390	3.10	FS(A)58 AM80 FS(A)58 B5T1	801-4 B14a 801-4 B5T1		
59	75	23.20	7250	3.30				

$P_{1n}$ [kW]	$n_2$ min <sup>-1</sup>	$M_{2n}$ [Nm]	$i$	$F_{r2}$ [N]	$f_s$		
0.55	13	265	71.75	7360	1.10	FS(A)58 AM80 FS(A)58 B5T1	802-6 B14a 802-6 B5T1
	13	250	67.20	7470	1.15		
	16	245	54.59	7520	1.10		
	19	215	47.32	7710	1.25		
	20	200	44.22	7790	1.35		
	24	176	38.23	7920	1.55		
	6.3	520	217.41	8660	1.00	FS(A)68 AM80 FS(A)68 B5T2	801-4 B14a 801-4 B5T2
	7.2	465	190.11	9150	1.10		
	7.5	445	180.60	9300	1.15		
	8.6	395	158.45	9620	1.30		
	10	340	134.40	9930	1.55		
	11	310	121.33	10100	1.65		
	13	275	106.75	10200	1.85		
	13	265	100.80	10300	1.95		
	16	230	85.83	10400	2.30		
	18	230	75.06	10400	2.10		
	21	205	65.63	10500	2.40		
0.75	36	159	38.23	4420	1.00	FS(A)48 AM80 FS(A)48 B5T1	802-4 B14a 802-4 B5T1
	42	136	32.48	4310	1.15		
	48	122	29.00	4230	1.25		
	56	106	24.77	4110	1.45		
	59	99	23.20	4060	1.55		
	16	285	84.00	7210	1.05	FS(A)58 AM80 FS(A)58 B5T1	802-4 B14a 802-4 B5T1
	19	250	71.75	7500	1.15		
	21	235	67.20	7590	1.20		
	25	225	54.59	7650	1.10		
	29	197	47.32	7810	1.25		
	31	185	44.22	7870	1.35		
	36	161	38.23	7980	1.50		
	42	138	32.48	7670	1.80		
	48	124	29.00	7450	2.00		
	56	107	24.77	7150	2.30		
	59	100	23.20	7030	2.50		
	16	295	56.61	7140	1.00	FS(A)58 AM90 FS(A)58 B5T1	90S-6 B14a 90S-6 B5T1
	20	275	44.22	7300	1.00		
	8.7	530	158.45	8570	1.00	FS(A)68 AM80 FS(A)68 B5T2	802-4 B14a 802-4 B5T2
	10	460	134.40	9180	1.15		
	11	420	121.33	9470	1.25		
	13	375	106.75	9750	1.40		
	14	355	100.80	9860	1.45		
	16	305	85.83	10100	1.70		
	18	310	75.06	10100	1.55		
	21	275	65.63	10200	1.75		
	22	260	62.35	10300	1.85		
	25	230	54.70	10300	2.10		
	30	198	46.40	9840	2.40		

$P_{1n}$  =  
Rated Motor  
Power [kW]

$n_2$  =  
Output Speed  
[Min<sup>-1</sup>]

$M_{2n}$  =  
Rated Output torque  
[Nm]



$M_{2max}$  =  
Maximum permissible  
output torque [Nm]

$F_{r2}$  =  
Permitted Overhung  
Load Output Side [N]

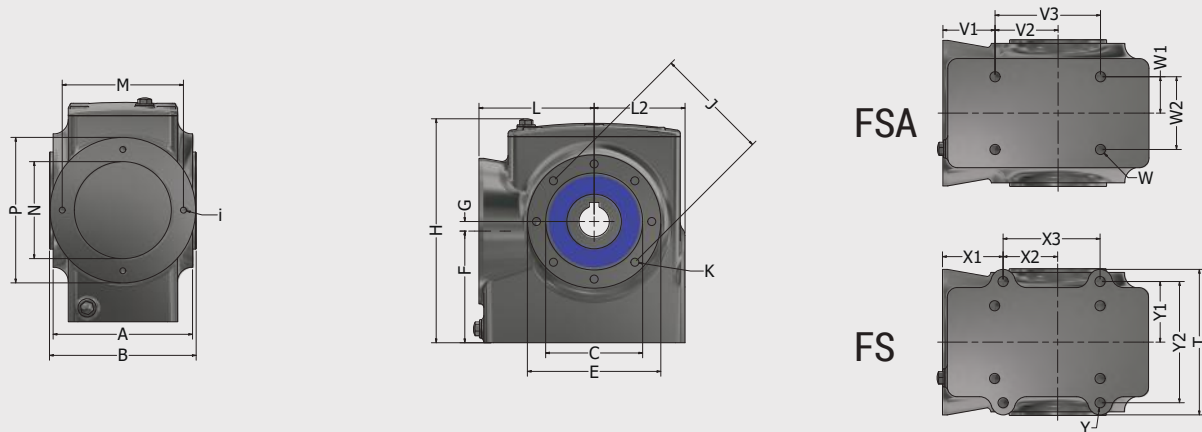
$i$  = Gear unit Ratio  
 $\eta$ % = Transmission  
Efficiency %

$f_s$  = Service Factor



$P_{1n}$ [kW]	$n_2$ min-1	$M_{2n}$ [Nm]	$i$	$F_{r2}$ [N]	$f_s$		
1.1	57	153	24.77	3670	1.00	FS(A)48 AM90 FS(A)48 B5T1	90S-4 B14a 90S-4 B5T1
	60	143	23.20	3640	1.05		
	37	235	38.23	7410	1.05	FS(A)58 AM90 FS(A)58 B5T1	90S-4 B14a 90S-4 B5T1
	43	200	32.48	7170	1.25		
	48	179	29.00	7000	1.35		
	57	154	24.77	6760	1.60		
	60	145	23.20	6660	1.70		
	14	515	100.80	8740	1.00	FS(A)68 AM90 FS(A)68 B5T2	90S-4 B14a 90S-4 B5T2
	16	445	85.83	9300	1.15		
	18	405	78.00	9550	1.30		
	21	400	65.63	9610	1.20		
	22	380	62.35	9720	1.25		
	26	335	54.70	9560	1.45		
	30	285	46.40	9240	1.65		
	33	260	41.89	9040	1.85		
	38	230	36.85	8780	2.10		
	40	220	34.80	8660	2.20		
47	187	29.63	8330	2.60			
1.1	49	245	29.00	6520	1.00	FS(A)58 AM90 FS(A)58 B5T1	90L-4 B14a 90L-4 B5T1
	57	210	24.77	6340	1.15		
	61	196	23.20	6270	1.25	FS(A)68 AM90 FS(A)68 B5T2	90L-4 B14a 90L-4 B5T2
	26	455	54.70	8810	1.05		
	30	390	46.40	8590	1.25		
	34	355	41.89	8450	1.35		
	38	310	36.85	8250	1.55		
	41	295	34.80	8160	1.60		
	48	255	29.63	7900	1.90		
	52	230	26.93	7740	2.10		
2.2	38	460	36.85	7360	1.05	FS(A)68 AM100 FS(A)68 B5T2	100L1-4 B14a 100L1-4 B5T2
	41	435	34.80	7320	1.10		
	48	370	29.63	7180	1.30		
	52	340	26.93	7080	1.40		
3.0	52	465	26.93	6330	1.05	FS(A)68 AM - FS(A)68 B5T2	100L2-4 B14a-100L2-4B5T2

### General Dimensions FS(A) B5T

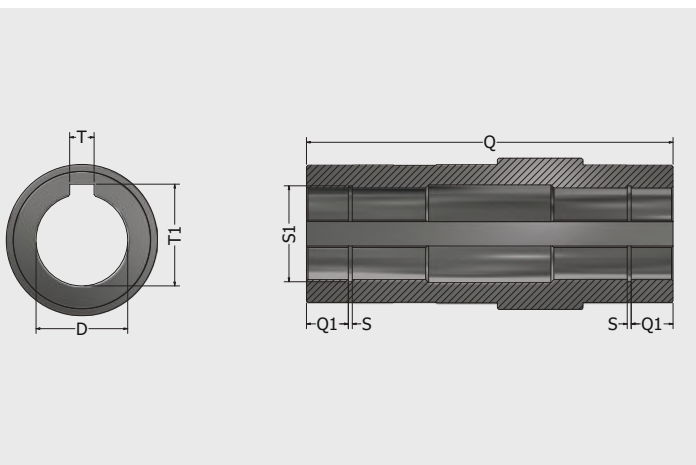


Gearbox	A	B	C	E	F	G	H	i	J	K	L	L2	M	N	P
FA(A) 38 B5T1	114	120	70	100	80	0	146	M6	85	4 x M8	80	63	100	80	120
FS(A) 48 B5T1	115	121	85	110	92.11	7.89	185	M6	95	8 x M8	95	75	100	80	120
FS(A) 58 B5T1	144	150	95	140	92	20	201	M6	115	8 x M8	107	80	100	80	120
FS(A) 68 B5T2	160	166	110	160	118	22	242	M8	130	8 x M10	136	98	130	110	160

Gearbox	V1	V2	V3	W	W1	W2
FSA 38 B5T1	50	30	60	M8	36	72
FSA 48 B5T1	43	52	87	M10	30	60
FSA 58 B5T1	48.5	58.5	117	M10	30	60
FSA 68 B5T2	55.5	80.5	152	M12	44	88

Gearbox	T	X1	X2	X3	Y	Y1	Y2
FS 38 B5T1	110	52	28	63	M8	45	90
FS 48 B5T1	120	50	45	80	M10	50	100
FS 58 B5T1	130	52	55	100	M10	55	110
FS 68 B5T2	160	66	70	130	M12	65	130

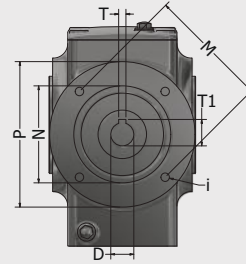
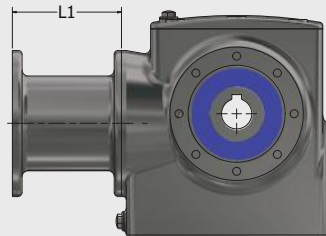
### Hollow Shaft Dimensions



Gearbox	D1	T	T1	Q	Q1	S	S1
FS(A) 38	20	6	22.8	120	13.9	1.1	21
FS(A) 48	25	8	28.3	121	13.7	1.3	26.2
FS(A) 48	30	8	33.3	121	13.7	1.3	31.4
FS(A) 58	30	8	33.3	150	16.7	1.3	31.4
FS(A) 58	35	10	38.3	150	16.7	1.6	37
FS(A) 68	40	12	43.3	166	20	1.85	42.5
FS(A) 68	45	14	48.8	166	20	1.85	47.5

Different hollow shaft dimensions possible on request

FS(A) AM Input Dimensions



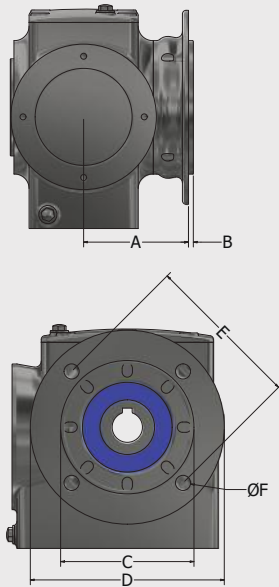
FS(A) 38 AM	D	i	L1	M	N	P	T	T1
FS(A) 38 AM63	11	9	90	115	95	140	4	12.8
FS(A) 38 AM71	14	9	90	130	110	160	5	16.3
FS(A) 38 AM80	19	7	90	100	80	120	6	21.8

FS(A) 58 AM	D	i	L1	M	N	P	T	T1
FS(A) 58 AM63	11	9	90	115	95	140	4	12.8
FS(A) 58 AM71	14	9	90	130	110	160	5	16.3
FS(A) 58 AM80	19	7	90	100	80	120	6	21.8
FS(A) 58 AM90	24	9	90	115	95	140	8	27.3

FS(A) 48 AM	D	i	L1	M	N	P	T	T1
FS(A) 48 AM63	11	9	90	115	95	140	4	12.8
FS(A) 48 AM71	14	9	90	130	110	160	5	16.3
FS(A) 48 AM80	19	7	90	100	80	120	6	21.8
FS(A) 48 AM90	24	9	90	115	95	140	8	27.3

FS(A) 68 AM	D	i	L1	M	N	P	T	T1
FS(A) 68 AM71	14	9	90	130	110	160	5	16.3
FS(A) 68 AM80	19	9	90	100	80	120	6	21.8
FS(A) 68 AM90	24	9	90	115	95	140	8	27.3
FS(A) 68 AM100	28	9	90	130	110	160	8	31.3

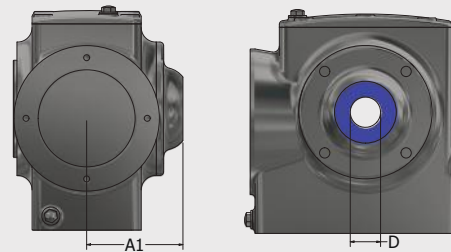
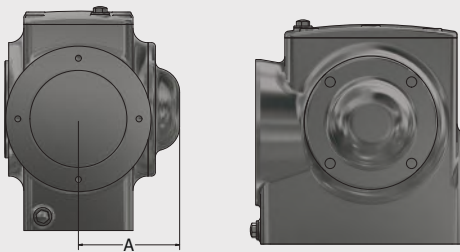
Output Flanges



Gearbox	Flange Type	A	B	C	D	E	F
FS(A) 38	SS 085 FL125	103.5	2	70	125	85	11
FS(A) 48	SS 095 FL160	86.5	4	110	160	130	9
FS(A) 58	SS 115 FL200	100	3.5	130	200	165	11
FS(A) 68	SS 130 FL250	106.5	4	180	250	215	13.5

Closed Cover

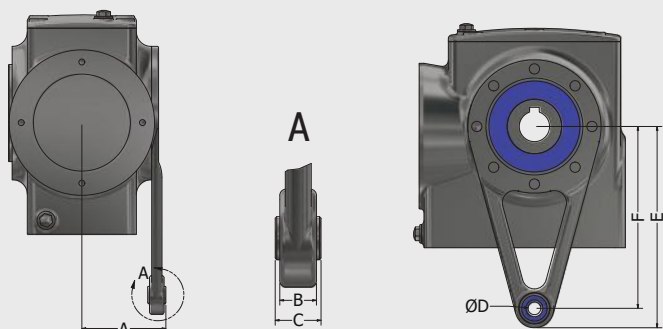
Open Cover



Gearbox	Closed Cover	A
FS(A) 38	SS 085 CC	77.5
FS(A) 48	SS 095 CC	83.5
FS(A) 58	SS 115 CC	100
FS(A) 68	SS 130 CC	108

Gearbox	Open Cover	A1	D
FS(A) 38	SS 085 C020	74.1	20
FS(A) 48	SS 095 C025	79.5	25
FS(A) 58	SS 115 C030	100	30
FS(A) 68	SS 130 C035	107.5	35

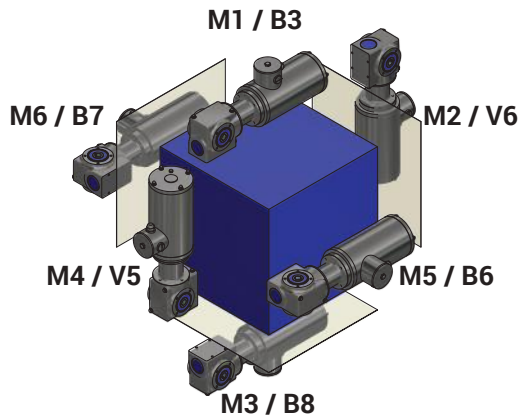
Torque Arm



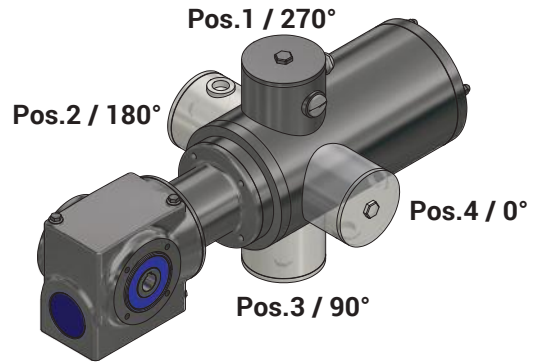
Gearbox	Torque Arm	A	B	C	D	E	F
FS(A) 38	SS085MS L100	69	12	15	10.5	116	100
	SS085MS L110S	69	12	15	10.5	126	110
FS(A) 48	SS095MS L130S	69.4	12	15	10.5	146	130
	SS095MS L150	69.4	12	15	10.5	166	150
FS(A) 58	SS115MS L160S	89.4	23	26	20.5	185	160
	SS115MS L200	89.4	23	26	20.5	225	200
FS(A) 68	SS130MS L200	98.6	23	26	20.5	225	200



### Mounting Positions



### Terminal Box Positions



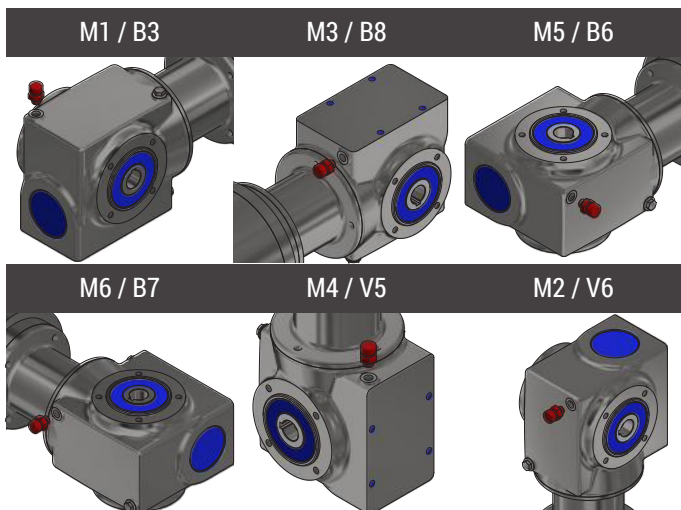
### Lubrication Quantity

Oil Quantity in ML.	Mounting Position					
	M1 (B3)	M3 (B8)	M6 (B7)	M5 (B6)	M4 (V5)	M2 (V6)
Gearbox						
FS(A) 38 B5T1 & AM..	400	800	500	500	800	500
FS(A) 48 B5T1 & AM..	750	1200	750	750	1300	900
FS(A) 58 B5T1 & AM..	1300	1800	1300	1300	2050	1400
FS(A) 68 B5T1 & AM..	2500	3200	2200	2200	3500	2500

### Lubrication Type

Lubrication Brand	Lubrication Type	
Matrix	Foodmax 460	Standard
Castrol	Optileb GT 460	Alternative
Bechem	Berusrsynth 460H1	Alternative
Shell	Casida Fluid GL460	Alternative
Mobil	SHC Cibus 460	Alternative

### Debreather Positions



### Weight

Gearbox	Weight
FS(A) 38 B5T1	7.5 Kg
FS(A) 48 B5T1	10.5 Kg
FS(A) 58 B5T1	14.5 Kg
FS(A) 68 B5T2	22.5 Kg

Gearbox	Weight
FS(A) 38 AM..	11 Kg
FS(A) 48 AM..	14 Kg
FS(A) 58 AM..	18 Kg
FS(A) 68 AM..	27 Kg

Given values are an average and may vary depending on oil quantity.



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