

EURONorm

DRIVE SYSTEMS



WORM GEARBOX REDUCERS

Introduction

The JRSTD(B), JRST(B) and JRSTDE are traditional worm gear reducers.

Thanks to the universal gear casing, the reducers can be assembled in almost any configuration.

Main features:

- Can be assembled in any configuration thanks to the universal gear casing
- Suitable for areas with an explosion risk thanks to compliance with the ATEX regulations.
- Fully interchangeable with all major makes of worm gear reducers
- Excellent price/quality ratio

Main characteristics:

- Single or double reduction
- Single reduction ratios 1:7,5 - 1:100
- Single reduction power 0,06 - 15 kW
- Double reduction ratios 1:1000 - 1:5000
- Double reduction power 0,06 - 1,5 kW
- Solid input shaft or IEC flange

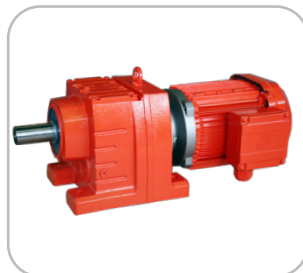
Euronorm

As an internationally operating supply partner Euronorm specialises in drive components, drive systems and drive solutions. Euronorm distinguishes itself in the market by offering a wide end deep programme, sound advice and an excellent price/quality ratio.

Direct contact, sound advice and “do as you say” are typical Euronorm qualities. Thanks to the compact organisation personal attention can be given to the needs of the customers making a real difference.

Customers are further supported with technical advice, professional testing of prototypes, extensive documentation and 3D drawings.

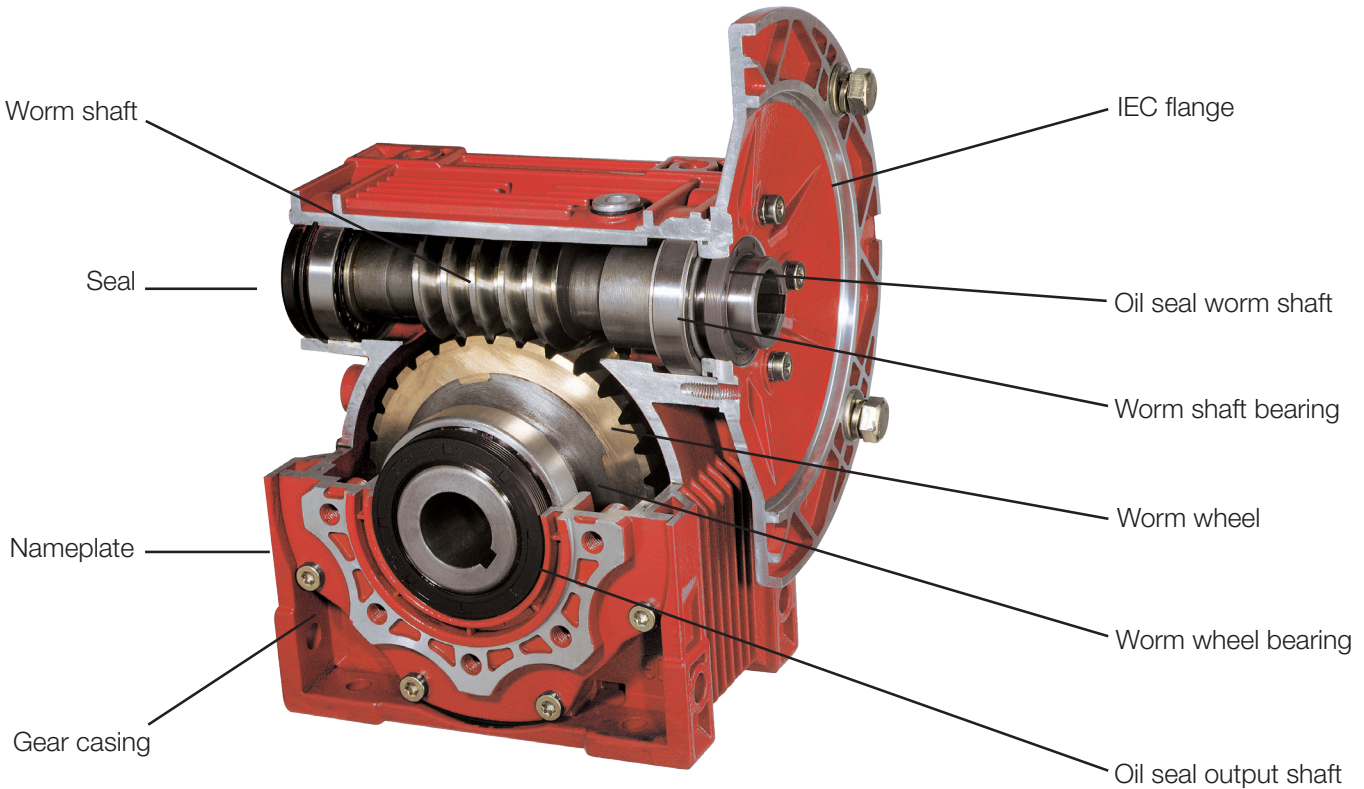
Euronorm is reliable supply partner with an extensive stock of reducers, motors and components. Most drives are built to order in the Euronorm assembly centre, enabling the rapid supply of both customer specific and semi-standard drives. The assembly centre can also assist with technical modifications such as extending or modifying shafts, applying nonstandard paintwork in any colour or quality. Euronorm also offers the production of customer specific sub-assemblies for just in time integration on the customers production line.



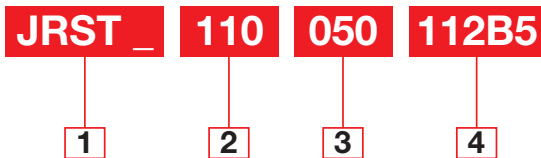
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1. Parts overview



2. Type coding



1. JRST - Worm gear reducer with solid input shaft
 JRSTD - Worm gear reducer with IEC motor flange
 JRSTB - Worm gear reducer with double solid input shaft
 JRSTDB - Worm gear reducer with IEC motor flange and secondary worm shaft

2. Frame size

025	075
030	090
040	110
050	130
063	150

3. Reduction ratio

007	040
010	050
015	060
020	080
025	100
030	

4. IEC motor flange

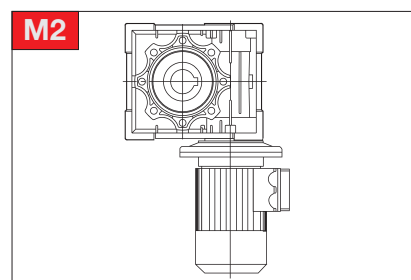
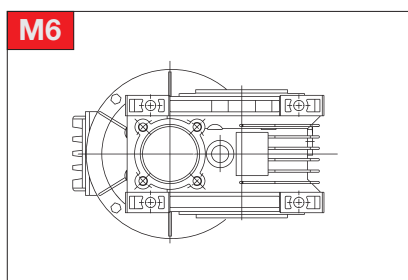
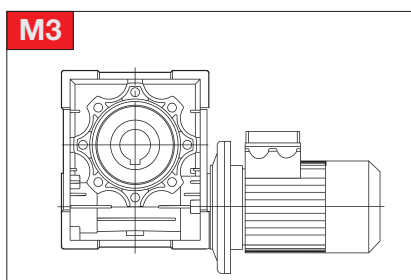
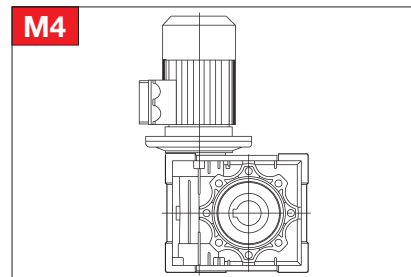
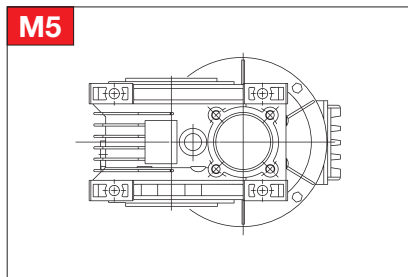
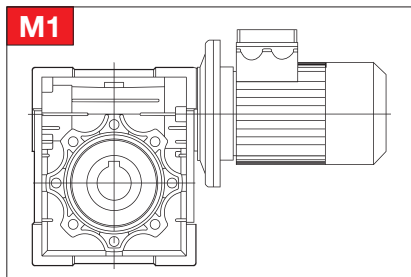
56B5	B14
63B5	B14
71B5	B14
80B5	B14
90B5	B14
112B5	B14
132B5	B14

3. Options

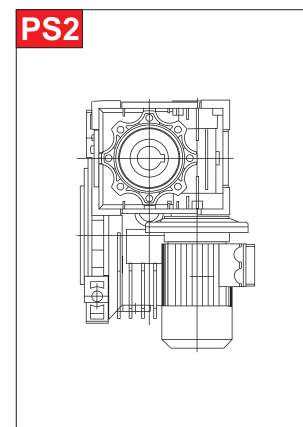
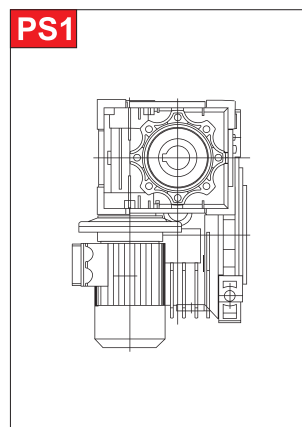
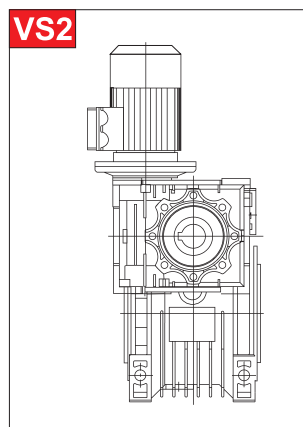
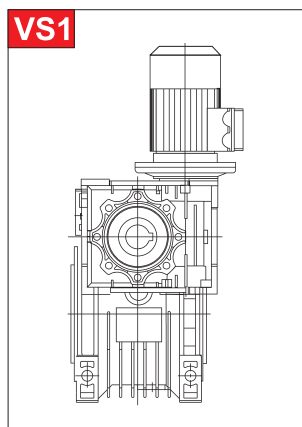
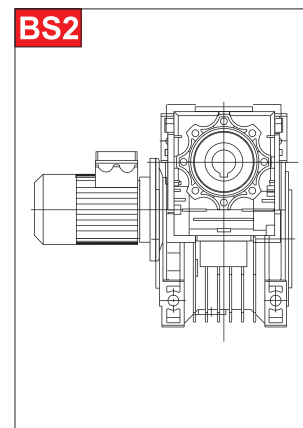
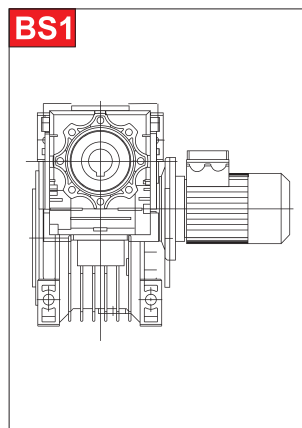
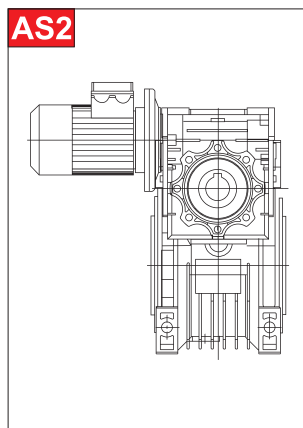
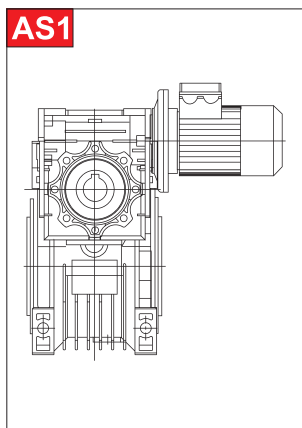
- Single plug in shaft
- Double plug in shaft
- Torque arm
- Foot plate
- Side mounting flange
- Protective cover for output shaft

4. Mounting positions

4.1 Single worm gear reducer



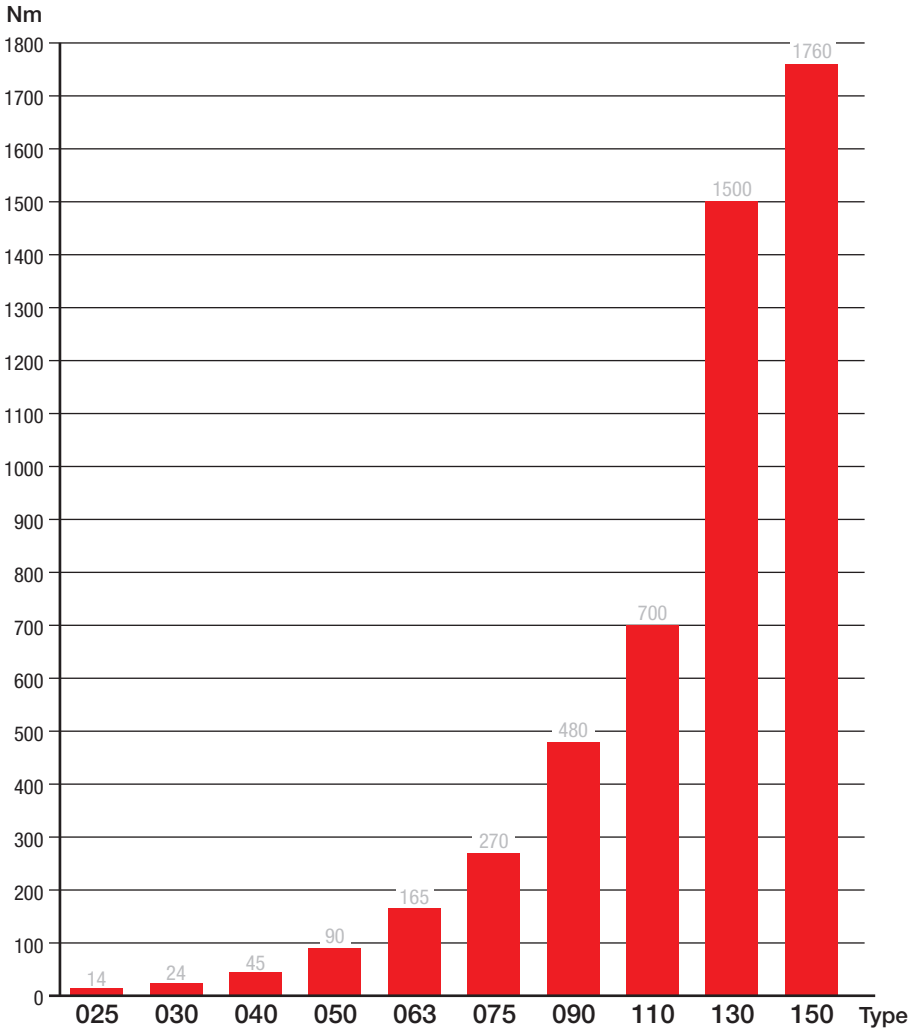
4.2 Double worm gear reducer



5. Selection overview

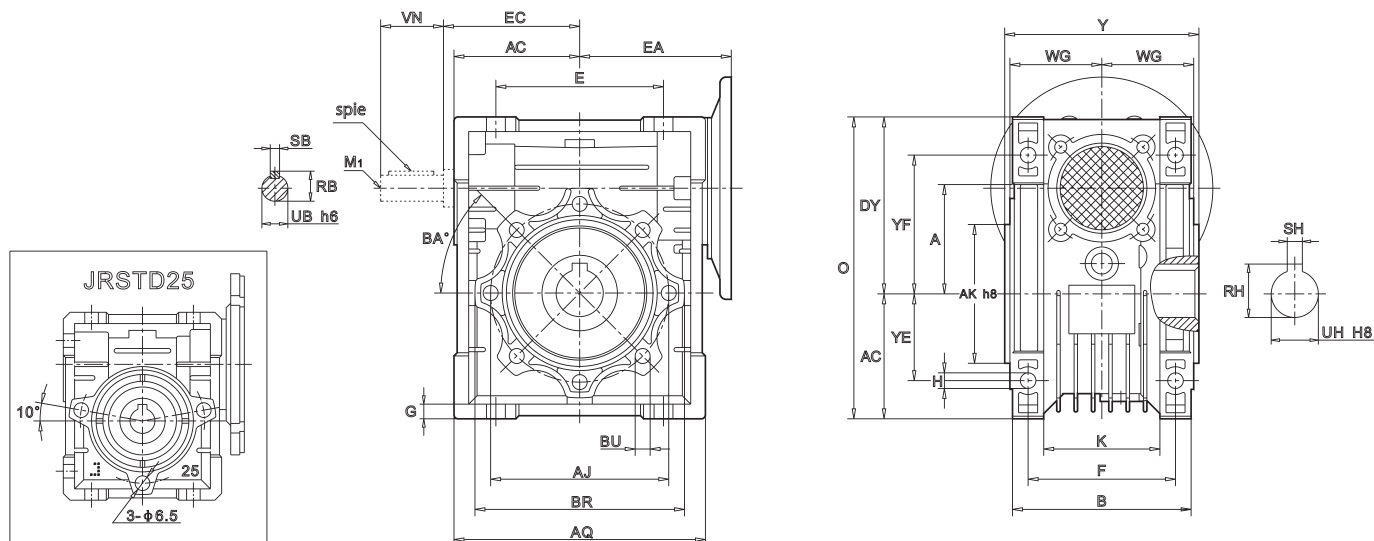
Overview of available motor flanges																
IEC	56		63		71		80		90		100/112		132		160	
Type	B14	B5	B14	B5	B14	B5	B14	B5	B14	B5	B14	B5	B14	B5	B14	B5
025	7,5-20; 30-60															
030	7,5-20; 30-80			7,5- 50												
040		50-100	20-80		7,5-40											
050				40-100	10-80		7,5-30									
063					40-100		15-60		7,5-30							
075							25-100		10-40		7,5-15					
090							50-100		20-60		7,5-30					
110									40-100		10-60		7,5-20			
130											25-100		7,5-40			
150												50- 100		20- 60		7,5- 25

Torque value overview



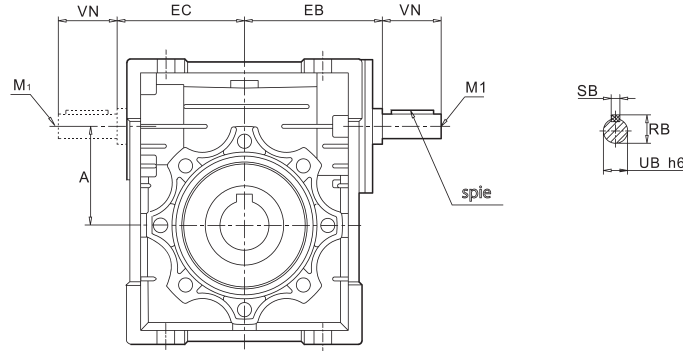
6. Dimensions

6.1 JRSTD(B) - IEC motor flange (optionally with secondary worm shaft)



IEC motor flange										
type	025	030	040	050	063	075	090	110	130	150
A	25	30	40	50	63	75	90	110	130	150
AC	35	40	50	60	72	86	103	127.5	147.5	170
AJ	55	65	75	85	95	115	130	165	215	215
AK	45	55	60	70	80	95	110	130	180	180
AQ	70	80	100	120	144	172	206	252	292	340
B	42	56	71	85	103	112	130	144	155	185
BA		0°	45°	45°	45°	45°	45°	45°	45°	45°
BR	65	75	87	100	110	140	160	200	250	250
BU		M6x11	M6x11	M8x10	M8x14	M8x14	M10x18	M10x18	M12x21	M12x21
Quantity		4	4	4	8	8	8	8	8	8
DY	48	57	71	84	102	119	135	167.5	187.5	230
E	45	54	70	80	100	120	140	170	200	240
EA	45	63	71	80	95	112.5	130	160	180	210
EC	-	45	53	64	75	90	108	135	155	175
F	34	44	60	70	85	90	100	115	120	145
G	5	5.5	6.5	7	8	10	11	15	15	18
H	6	6.5	7	8.5	8.5	11	13	14	16	18
K	22	32	43	49	67	72	74	-	-	-
MI	-	-	-	M6	M6	M8	M8	M10	M10	M12
O	83	97	121	144	174	205	238	295	335	400
RB	-	10.2	12.5	16	21.5	27	27	31	33	38
RH	12.8	16.3	20.8	28.3	28.3	31.3	38.3	45.3	48.8	53.8
SB	-	3	4	5	6	8	8	8	8	10
SH	4	5	6	8	8	8	10	12	14	14
UB	-	9	11	14	19	24	24	28	30	35
UH	11	14	18	25	25	28	35	42	45	50
VN	-	20	23	30	40	50	50	60	80	80
WG	22.5	29	36.5	43.5	53	57	67	74	81	96
Y	50	63	78	92	112	120	140	155	170	200
YE	22	27	35	40	50	60	70	85	100	120
YF	35.5	44	55	64	80	93	102	125	140	180
Weight (kg)	0.7	1.3	2.3	3.5	6.2	9	13	35	48	84

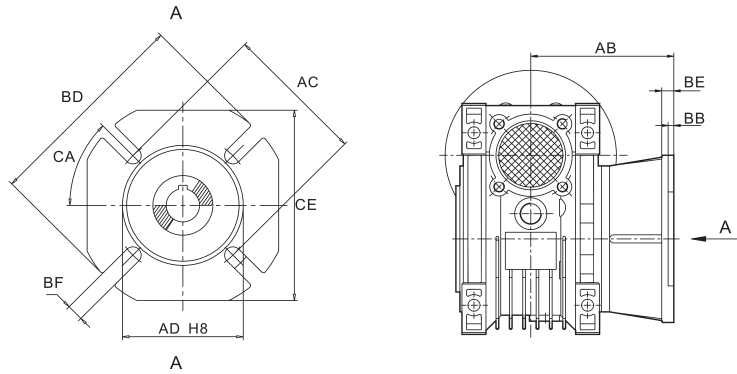
6.2 JRST(B) - (double) solid input shaft



Solid input shaft

type	030	040	050	063	075	090	110	130	150
A	30	40	50	63	75	90	110	130	150
EB	50	61	74	90	105	125	142	162	195
EC	45	53	64	75	90	108	135	155	175
M1	-	-	M6	M6	M8	M8	M10	M10	M12
RB	10.2	12.5	16	21.5	27	27	31	33	38
SB	3	4	5	6	8	8	8	8	10
UB	9	11	14	19	24	24	28	30	35
VN	20	23	30	40	50	50	60	80	80
Key dimensions									
B x H	3x3	4x4	5x5	6x6	8x7	8x7	8x7	8x7	10x8
Length	15	20	25	35	45	45	55	70	70

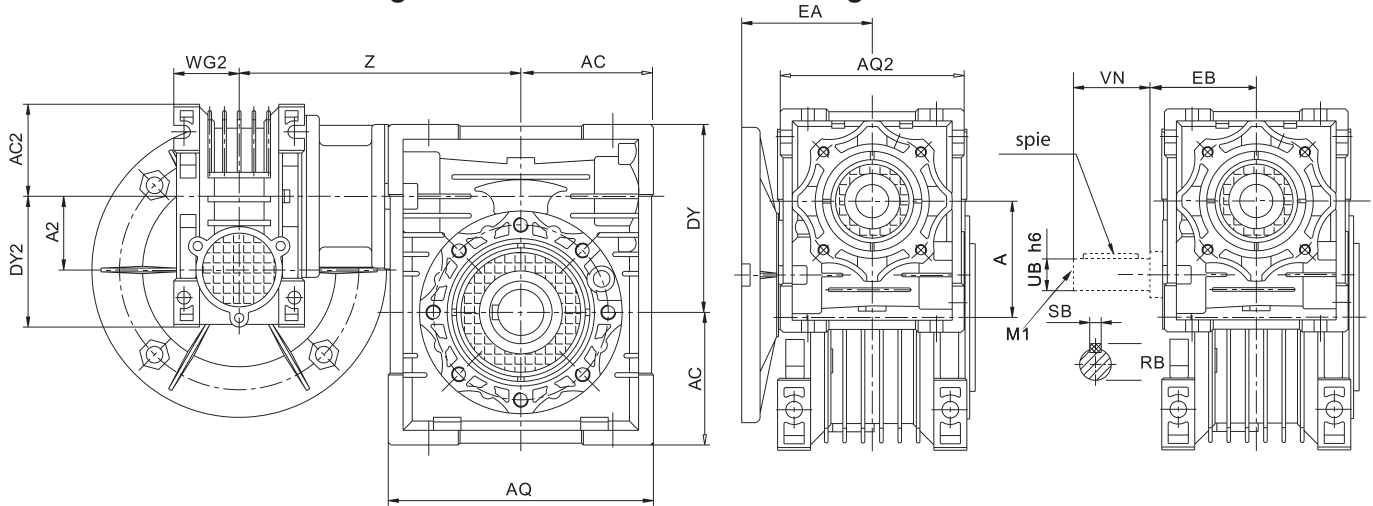
6.3 Output shaft flange



Output shaft flange

type	025	030	040	050	063	075	090	110	130	150
AB	45	54.5	67	90	82	102	111	131	140	155
AC	55	68	80	85	150	165	175	230	255	255
AD	40	50	60	70	115	130	152	170	180	180
BB	3	4	4	5	6	6	6	6	6	7
BD	75	80	110	125	180	200	210	280	320	320
BE	6	6	7	9	10	13	13	15	15	15
BF	6.5	6.5	9	11	11	14	14	14	16	16
Quantity	4	4	4	4	4	4	4	4	4	4
CA	45°	45°	45°	45°	45°	45°	45°	45°	22.5°	22.5°
CE	70	70	95	110	142	170	200	260	290	290

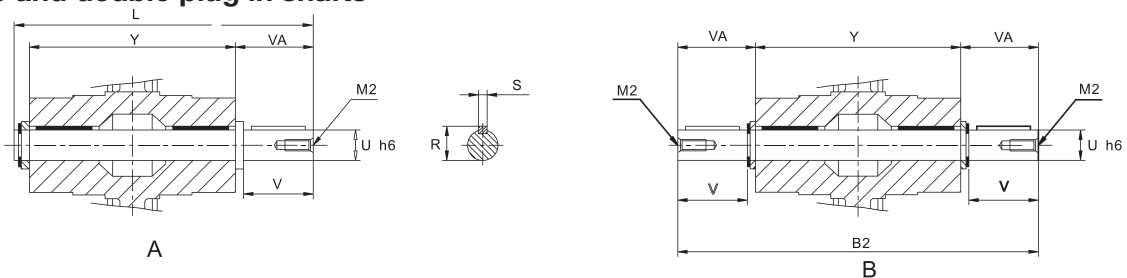
6.4 JRSTDE – Double worm gear reducer with IEC motor flange



Double worm gear reducers with IEC motor flange

type	025/030	025/040	030/040	030/050	030/063	040/075	040/090	050/110	063/130	063/150
A	30	40	40	50	63	75	90	110	130	150
A2	25	25	30	30	30	40	40	50	63	63
AC	40	50	50	60	72	86	103	127.5	147.5	170
AC2	35	35	40	40	40	50	50	60	72	72
AQ	80	100	100	120	144	172	206	252.5	292.5	340
AQ2	70	70	80	80	80	100	100	120	144	144
DY	57	71	71	84	102	119	135	167.5	187.5	230
DY2	48	48	57	57	57	71	71	04	102	102
EA	45	63	63	63	63	71	71	80	95	95
EB	-	-	50	50	50	61	61	74	90	90
M1	-	-	-	-	-	-	-	M6	M6	M6
RB	-	-	10.2	10.2	10.2	12.5	12.5	16	21.5	21.5
SB	-	-	3	3	3	4	4	5	6	6
UB	-	-	9	9	9	11	11	14	19	19
VN	-	-	20	20	20	23	23	30	40	40
WG2	22.5	22.5	29	29	29	36.5	36.5	43.5	53	53
Z	100	115	122	132	145	167.5	184.5	226	245	275
Key dimensions										
B x H	-	-	3x3	3x3	3x3	4x4	4x4	5x5	6x6	6x6
Length	-	-	15	15	15	20	20	25	35	35

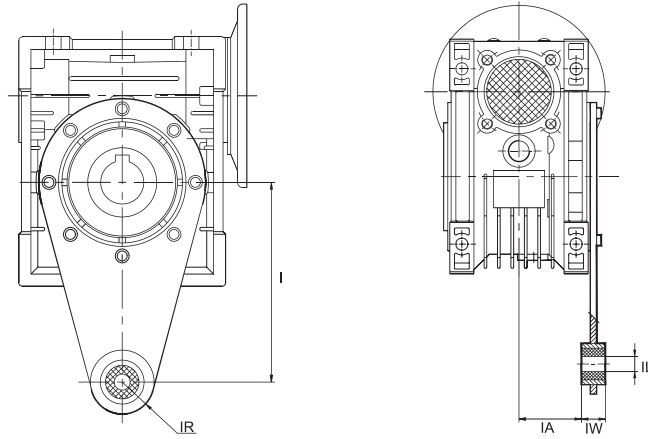
6.5 Single and double plug in shafts



Single and double plug in shafts

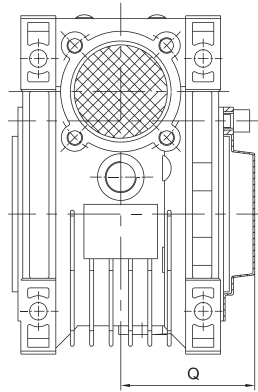
type	025	030	040	050	063	075	090	110	130	150
B2	101	128	164	199	219	247	308	324	340	374
L	81	102	128	153	173	192	234	249	265	297
M2	-	M6	M6	M10	M10	M10	M12	M16	M16	M16
R	12.5	16	20.5	28	28	31	38	45	48.5	53.5
S	4	5	6	8	8	8	10	12	14	14
U	11	14	18	25	25	28	35	42	45	50
V	23	30	40	50	50	60	80	80	80	82
VA	25.5	32.5	43	53.5	53.5	63.5	84.5	84.5	85	87
Y	50	63	78	92	112	120	140	155	170	200

6.6 Torque arm



Torque arm										
type	025	030	040	050	063	075	090	110	130	150
I	70	85	100	100	150	200	200	250	250	250
IA	17.5	24	31.5	38.5	49	47.5	57.5	62	69	84
IL	8	8	10	10	10	20	20	25	25	25
IR	15	15	18	18	18	30	30	35	35	35
IW	14	14	14	14	14	25	25	30	30	30

6.7 Protective cover output shaft



Protective cover output shaft									
type	030	040	050	063	075	090	110	130	150
Q	42	50	58	69	74	86	94	102	117

7. Selection

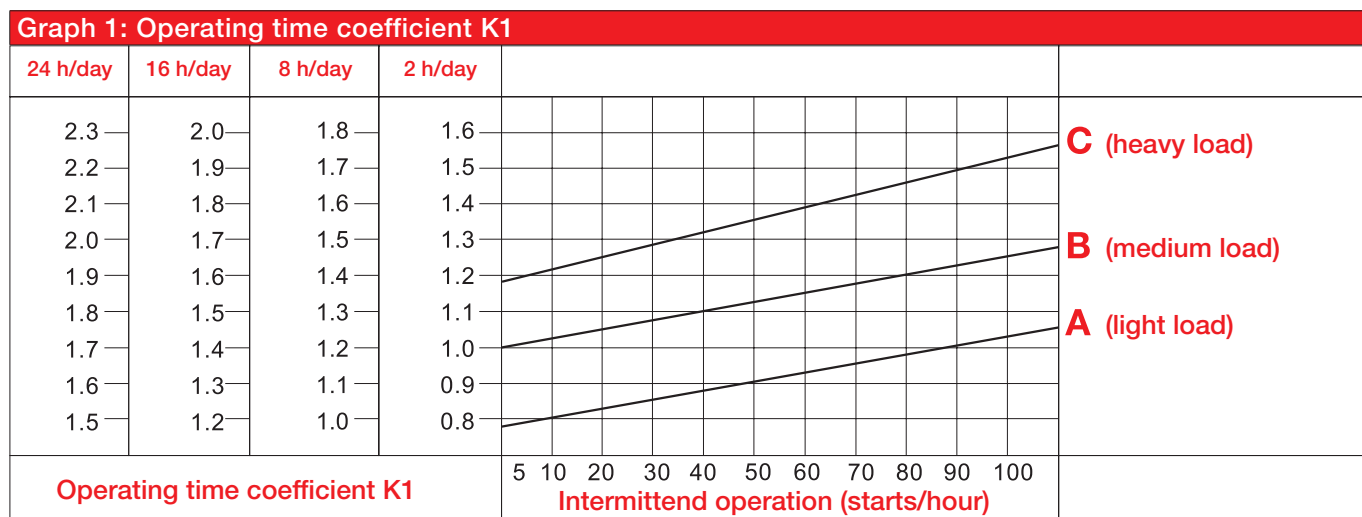
7.1 Selection procedure

Before starting the selection, first the following needs to be established:

- Type of load
- Desired speed of the output shaft or gear ratio
- Operational conditions
- Environmental conditions
- Definition of starting points:
- Determination of the type of load using table 1.
- Determine on the basis of load, average operation time and the number of starts per hour using coefficient K1 of Table 1.
- Determine environmental coefficient K2 in Table 2 on the basis of the ambient temperature.

Table 1: Load classification		
Type of load	Example	Classification
Even load	Conveyor belt Static belt	A (light load)
Alternating load	Conveyor belt with varying speeds and load	B (medium load)
Impact load	Compressors, Crushers etc.	C (heavy load)

Table 2: Environmental coefficient K2	
Ambient temperature	Environmental coefficient K2
-10°C - 30°C	1
30°C - 40°C	1.1 - 1.2



Method 1 (preferred method))

1. Determine the required output torque and speed for the application.
The formula and calculation methods shown on page 12 may be used for this.
2. The required torque must be multiplied with K1 and the result of this multiplied by K2.
The value calculated is the torque value to be used for the selection.
3. On the basis of the calculated torque and output speed a suitable reducer may be chosen from the selection tables.
4. As a last step, it must be checked that the radial and axial forces on the bearings stay within the permissible values.
The maximum axial force is 0,2 x the maximum radial force (see selection table).

Method 2 (alternative method)

When the electric motor and the gear ratio are known the below method may be used.

1. Select the correct reducer on the basis of motor power and gear ratio.
2. For each motor/worm gear reducer combination a safety factor F_s is provided.
3. Depending on the average motor load and the condition coefficients it can be decided if the selected drive is suitable:
 $\text{motor load \%} \times K1 \times K2 < F_s$
4. As a last step, it must be checked that the radial and axial forces on the bearings stay within the permissible values.
The maximum axial force is 0,2 x the maximum radial force (see selection table).

7.2 Selection examples

Example 1

Application : Conveyor belt (even load)
Torque : 19 Nm
Speed : 55 rpm
Operating time : 8 hours/day
Starts/hour : 10x
Gear ratio i : $1400/55 = 25,5$ therefore $i=25$

1. Determine the load classification in table 1: A
2. Take the reading for K1 in graph 1: 1.0
3. Take the reading for K2 in table 2
4. Determine the calculating torque: Required torque x K1 x K2 = $19 \times 1 \times 1 = 19$ Nm
5. A search based on torque and gear ratio finds the JRSTD30 with a 0,18 kW 1400 rpm motor: torque 21 Nm and $i = 25$.
6. Check: Multiply the torque found by Fs. Compare the value with the calculating torque:
7. $21 \text{ Nm} \times 1 = 21 \geq 19$, therefore the selected worm gear reducer is suitable.

Example 2

Application : Conveyor belt (varying load)
Torque : 65 Nm
Speed : 21 rpm
Operating time : 16 ours/day
Starts/hour : 100x
Gear ratio i : $1400/21 = 66$, therefore $i=60$

1. Determine the load classification in table 1: B
2. Take the reading for K1 in graph 1: 1,68
3. Take the reading for K2 in table 2: 1,15
4. Determine the calculating torque Required torque x K1 x K2 = $65 \times 1,68 \times 1,15 = 126$ Nm
5. A search based on torque and gear ratio finds the JRSTD63 with a 0,55 kW 1400 rpm motor: Torque 140 Nm and $i = 60$.
6. Check: Multiply the torque found by Fs. Compare the value with the calculating torque:
7. $140 \text{ Nm} \times 0,9 = 126 \geq 126$, therefore the selected worm gear reducer is (only just) suitable.

8. Selection table - single worm gear reducers

motor power	output torque	output speed	ratio	efficiency	radial force	service factor	type
kW	Nm	rpm	i	%	kN		nr
0.06	2.6	186.7	7.5	85	0.5	4.2	025
	3.4	140	10	83	0.6	3.5	
	4.9	93.3	15	80	0.6	2.5	
	6.1	70	20	75	0.7	2.0	
	8.2	46.7	30	67	0.8	1.6	
	10.0	35	40	61	0.9	1.3	
	12.0	28	50	59	0.9	0.9	
	14.0	23.1	60	57	1.0	0.7	
	2.6	186.7	7.5	85	0.7	6.9	030
	3.4	140	10	83	0.8	5.4	
	4.7	93.3	15	77	0.9	3.8	
	6.0	70	20	73	0.9	3.0	
	7.0	56	25	68	1.0	3.0	
	8.0	46.7	30	65	1.1	2.5	
9.7	35	40	59	1.2	1.9		
11.0	28	50	54	1.3	1.5		
13.0	23.3	60	53	1.4	1.3		
14.1	17.5	80	43	1.5	0.9		
0.09	3.9	186.7	7.5	85	0.5	2.8	025
	5.1	140	10	83	0.6	2.4	
	7.4	93.3	15	80	0.6	1.6	
	9.2	70	20	75	0.7	1.3	
	12.3	56	25	80	0.8	1.1	
	14.9	46.7	30	81	0.9	0.9	
	3.9	186.7	7.5	85	0.7	4.6	030
	5.1	140	10	83	0.8	3.6	
	7.1	93.3	15	77	0.9	2.5	
	9.0	70	20	73	0.9	2.0	
	10.4	56	25	68	1.0	2.0	
	12.0	46.7	30	65	1.1	1.7	
	14.5	35	40	59	1.2	1.2	
	16.6	28	50	54	1.3	1.0	
19.5	23.3	60	53	1.4	0.9		
19.0	28	50	62	2.5	2.0	040	
21	23.3	60	57	2.6	1.7		
26	17.5	80	53	2.9	1.3		
29	14	100	47	3.1	1.0		
5.2	186.7	7.5	85	0.7	3.4	030	
6.8	140	10	83	0.8	2.7		
9.5	93.3	15	77	0.9	1.9		
12.0	70	20	73	0.9	1.5		
13.9	56	25	68	1.0	1.5		
16.0	46.7	30	65	1.1	1.3		
19.3	35	40	59	1.2	0.9		
22	28	50	54	1.3	0.8		
17.4	46.7	30	71	2.1	2.6	040	
21	35	40	65	2.3	1.9		
25	28	50	62	2.5	1.5		
28	23.3	60	57	2.6	1.3		
35	17.5	80	53	2.9	1.0		
38	14	100	47	3.1	0.8		
29	23.3	60	59	3.6	2.3	050	
35	17.5	80	53	4.0	1.9		
40	14	100	49	4.3	1.4		
0.18	7.8	186.7	7.5	85	0.7	2.3	030
	10.2	140	10	83	0.8	1.8	
	14.2	93.3	15	77	0.9	1.3	
	17.9	70	20	73	0.9	1.0	
	21	56	25	68	1.0	1.0	
	24	46.7	30	65	1.1	0.8	
	19.4	70	20	79	1.8	2.0	040
	23	56	25	75	2.0	1.7	
	26	46.7	30	71	2.1	1.7	
	32	35	40	65	2.3	1.3	
	38	28	50	62	2.5	1.0	
	42	23.3	60	57	2.6	0.8	
	33	35	40	67	3.2	2.3	050
	39	28	50	63	3.4	1.9	
43	23.3	60	59	3.6	1.6		
52	17.5	80	53	4.0	1.2		
60	14	100	49	4.3	0.9		
11.0	186.7	7.5	86	1.3	3.6	040	
14.0	140	10	82	1.4	2.8		
21	93.3	15	82	1.7	1.9		
27	70	20	79	1.8	1.5		
32	56	25	75	2.0	1.2		
36	46.7	30	71	2.1	1.3		
44	35	40	65	2.3	0.9		
53	28	50	62	2.5	0.8		
27	70	20	79	2.5	2.7	050	
32	56	25	76	2.7	2.2		
37	46.7	30	73	2.9	2.3		
46	35	40	67	3.2	1.7		
54	28	50	63	3.4	1.4		
60	23.3	60	59	3.6	1.1		
72	17.5	80	53	4.0	0.9		
56	28	50	66	4.4	2.4	063	
63	23.3	60	62	4.7	2.0		
78	17.5	80	57	5.2	1.6		
87	14	100	51	5.6	1.4		
16.3	186.7	7.5	86	1.3	2.4	040	
21	140	10	82	1.4	1.9		
31	93.3	15	82	1.7	1.3		
40	70	20	79	1.8	1.0		
47	56	25	75	2.0	0.8		
54	46.7	30	71	2.1	0.8		
21	140	10	83	2.0	3.3	050	
31	93.3	15	82	2.3	2.4		
40	70	20	79	2.5	1.8		
48	56	25	76	2.7	1.5		
55	46.7	30	73	2.9	1.5		
68	35	40	67	3.2	1.1		
79	28	50	63	3.4	0.9		
89	23.3	60	59	3.6	0.8		
71	35	40	70	4.1	2.1	063	
83	28	50	66	4.4	1.6		
94	23.3	60	62	4.7	1.4		
115	17.5	80	57	5.2	1.1		
129	14	100	51	5.6	0.9		

motor power	output torque	output speed	ratio	efficiency	radial force	service factor	type	
kW	Nm	rpm	i	%	kN		nr	
0.55	25	186.7	7.5	89	1.8	2.9	050	
	31	140	10	83	2.0	2.2		
	46	93.3	15	82	2.3	1.6		
	59	70	20	79	2.5	1.2		
	71	56	25	76	2.7	1.0		
	82	46.7	30	73	2.9	1.0		
	101	35	40	67	3.2	0.9	063	
	61	70	20	81	3.3	2.2		
	73	56	25	78	3.5	1.8		
	83	46.7	30	74	3.7	1.9		
	105	35	40	70	4.1	1.4		
	124	28	50	66	4.4	1.1		
	140	23.3	60	62	4.7	0.9	075	
	108	35	40	72	4.9	2.0		
	129	28	50	69	5.2	1.6		
	146	23.3	60	65	5.6	1.4		
	180	17.5	80	60	6.1	1.1		
	206	14	100	55	6.6	0.9		
189	17.5	80	63	6.8	1.5	090		
221	14	100	59	7.3	1.2			
0.75	34	186.7	7.5	89	1.8		2.1	050
	42	140	10	83	2.0		1.6	
	63	93.3	15	82	2.3		1.2	
	81	70	20	79	2.5		0.9	
	63	93.3	15	82	3.0	2.2	063	
	83	70	20	81	3.3	1.6		
	100	56	25	78	3.5	1.3		
	114	46.7	30	74	3.7	1.4		
	143	35	40	70	4.1	1.0		
	102	56	25	80	4.2	2.0		075
	117	46.7	30	76	4.4	2.0		
	147	35	40	72	4.9	1.5		
	176	28	50	69	5.2	1.2		
	200	23.3	60	65	5.6	1.0		
	184	28	50	72	5.8	1.8	090	
	212	23.3	60	69	6.2	1.5		
	258	17.5	80	63	6.8	1.1		
	302	14	100	59	7.3	0.9		
1.1	49	186.7	7.5	87	2.4	2.6		063
	65	140	10	87	2.6	2.0		
	92	93.3	15	82	3.0	1.5		
	122	70	20	81	3.3	1.1		
	146	56	25	78	3.5	0.9		
	167	46.7	30	74	3.7	1.0		
	210	35	40	70	3.6	0.9	075	
	96	93.3	15	85	3.5	2.1		
	123	70	20	82	3.9	1.7		
	150	56	25	80	4.2	1.3		
	171	46.7	30	76	4.4	1.3		
	216	35	40	72	4.9	1.0		
	259	28	50	69	4.6	0.9	090	
	293	23.3	60	65	4.9	0.8		
	216	35	40	72	5.4	1.6		
	270	28	50	72	5.8	1.3		
	311	23.3	60	69	6.2	1.0		
	378	17.5	80	63	6.2	0.9		110
281	28	50	75	7.3	2.3			
324	23.3	60	72	7.8	1.9			
402	17.5	80	67	8.6	1.3			
473	14	100	63	9.2	1.0			

motor power	output torque	output speed	ratio	efficiency	radial force	service factor	type	
kW	Nm	rpm	i	%	kN		nr	
1.5	67	186.7	7.5	87	2.4	1.9	063	
	89	140	10	87	2.6	1.5		
	126	93.3	15	82	3.0	1.1		
	166	70	20	81	3.3	0.8		
	90	140	10	88	3.1	2.2		075
	130	93.3	15	85	3.5	1.5		
	168	70	20	82	3.9	1.3		
	205	56	25	80	4.2	1.0		
	233	46.7	30	76	4.4	1.0		
	172	70	20	84	4.3	2.1	090	
	210	56	25	82	4.6	1.6		
	239	46.7	30	78	4.9	1.7		
	295	35	40	72	5.4	1.2		
	368	28	50	72	5.8	0.9		
	424	23.3	60	69	6.2	0.8		110
	319	35	40	78	6.8	2.2		
	384	28	50	75	7.3	1.7		
	442	23.3	60	72	7.8	1.4		
548	17.5	80	67	8.6	0.9			
2.2	100	186.7	7.5	89	2.8	1.8	075	
	132	140	10	88	3.1	1.5		
	191	93.3	15	85	3.5	1.0		
	246	70	20	82	3.4	0.9		
	300	56	25	80	3.9	0.8		
	101	186.7	7.5	90	3.1	2.9		090
	134	140	10	89	3.4	2.3		
	194	93.3	15	86	3.9	1.9		
	252	70	20	84	4.3	1.4		
	308	56	25	82	4.6	1.1		
	351	46.7	30	78	4.9	1.2	110	
	432	35	40	72	4.9	1.0		
	540	28	50	72	5.3	0.9		
	255	70	20	85	5.4	2.5		
	315	56	25	84	5.8	2.2		
	356	46.7	30	79	6.2	2.0		
	468	35	40	78	6.8	1.5	130	
	563	28	50	75	7.3	1.2		
648	23.3	60	72	7.8	1.0			
468	35	40	78	8.9	2.2			
563	28	50	75	9.6	1.7			
648	23.3	60	72	10.2	1.4			
816	17.5	80	68	11.2	1.0	150		
870	14	100	58	10.6	0.8			
570	28	50	76	13.1	2.5			
657	23.3	60	73	13.9	1.9			
816	17.5	80	68	15.3	1.4			
960	14	100	64	16.5	1.0			

motor power	output torque	output speed	ratio	efficiency	radial force	service factor	type	
kW	Nm	rpm	i	%	kN		nr	
3	137	186.7	7.5	89	2.8	1.4	075	
	180	140	10	88	3.1	1.1		
	261	93.3	15	85	3.5	0.8		
	138	186.7	7.5	90	3.1	2.1		090
	182	140	10	89	3.4	1.7		
	264	93.3	15	86	3.9	1.4		
	344	70	20	84	4.3	1.0		
	419	56	25	82	4.6	0.8		
	479	46.7	30	78	4.9	0.9	110	
	264	93.3	15	86	4.9	2.5		
	348	70	20	85	5.4	1.9		
	430	56	25	84	5.8	1.6		
	485	46.7	30	79	6.2	1.5		
	638	35	40	78	6.8	1.1	130	
	767	28	50	75	7.3	0.9		
	430	56	25	84	7.6	2.2		
	491	46.7	30	80	8.1	2.1		
	638	35	40	78	8.9	1.6		
	767	28	50	75	9.6	1.3	150	
	884	23.3	60	72	10.2	1.0		
1113	17.5	80	68	11.2	0.8			
778	28	50	76	13.1	1.8			
896	23.3	60	73	13.9	1.4			
1113	17.5	80	68	15.3	1.0	075		
1310	14	100	64	16.5	0.8			
4	182	186.7	7.5	89	2.4		1.4	090
	184	186.7	7.5	90	3.1		1.6	
	243	140	10	89	3.4		1.3	
	352	93.3	15	86	3.9		1.0	110
	458	70	20	84	4.3		0.8	
	243	140	10	89	4.3		2.5	
	352	93.3	15	86	4.9		1.9	130
	464	70	20	85	5.4		1.4	
	573	56	25	84	5.8		1.2	
	647	46.7	30	79	6.2		1.1	150
	573	56	25	84	7.6		1.6	
	655	46.7	30	80	8.1	1.6		
	851	35	40	78	8.9	1.2	075	
1023	28	50	75	9.6	1.0			
1179	23.3	60	72	10.2	0.8			
1037	28	50	76	13.1	1.4			
1195	23.3	60	73	13.9	1.1			
1484	17.5	80	68	15.3	0.8	110		
334	140	10	89	3.9	2.2			
484	93.3	15	86	4.3	1.8			
638	70	20	85	4.9	1.4			
788	56	25	84	5.4	1.0			
889	46.7	30	79	5.2	0.9		130	
334	140	10	89	5.6	2.5			
490	93.3	15	87	6.4	1.9			
645	70	20	86	7.1	1.4		150	
788	56	25	84	7.6	1.2			
900	46.7	30	80	8.1	1.2			
1170	35	40	78	8.9	0.9			
1407	28	50	75	8.5	0.8			
645	70	20	86	9.7	2.0			
788	56	25	84	10.4	1.5			
934	46.7	30	83	11.1	1.3			
1170	35	40	78	12.2	1.3			
1426	28	50	76	13.1	1.0			
1643	23.3	60	73	13.9	0.8			

motor power	output torque	output speed	ratio	efficiency	radial force	service factor	type
kW	Nm	rpm	i	%	kN		nr
7.5	345	186.7	7.5	90	3.9	1.6	110
	455	140	10	89	4.3	1.3	
	660	93.3	15	86	4.9	1.0	
	345	186.7	7.5	90	5.1	2.1	130
	455	140	10	89	5.6	1.8	
	668	93.3	15	87	6.4	1.4	
	880	70	20	86	7.1	1.0	
	1074	56	25	84	7.6	0.9	
	1228	46.7	30	80	8.1	0.8	
	1596	35	40	78	8.9	0.7	
	880	70	20	86	9.7	1.5	150
	1074	56	25	84	10.4	1.1	
	1274	46.7	30	83	11.1	0.9	
1596	35	40	78	12.2	1.0		
11	512	186.7	7.5	91	7.0	2.3	150
	675	140	10	90	7.7	1.8	
	990	93.3	15	88	8.8	1.3	
	1291	70	20	86	9.7	1.0	
1576	56	25	84	10.4	0.8		
15	698	186.7	7.5	91	7.0	1.7	150
	921	140	10	90	7.7	1.3	
	1351	93.3	15	88	8.8	0.9	
	1760	70	20	86	9.7	0.7	

9. Selectietabel - dubbele wormwielkasten

motor power	output		ratio			radial force	service factor	type	
	speed	torque	total	small	large				
kW	Nm	rpm		i		kN		nr	
0.06	14	25	100	10	10	1.62	1.3	25/30	
	9.3	32	150	10	15	1.83	0.9		
	7.0	41	200	10	20	1.83	0.7		
	5.6	44	250	10	25	1.83	0.8		
	4.7	59	300	10	30	3.49	1.2		
	3.5	71	400	10	40	3.49	0.9		
	2.8	82	500	20	25	3.49	0.7		
	2.3	101	600	20	30	3.49	0.6		
	1.9	116	750	25	30	3.49	0.5		
	1.6	143	900	30	30	3.49	0.5		
	1.2	171	1200	30	40	3.49	0.4	25/40	
	0.9	197	1500	50	30	3.49	0.3		
	0.78	217	1800	60	30	3.49	0.3		
	0.6	268	2400	60	40	3.49	0.2		
	0.5	324	3000	60	50	3.49	0.2		
	0.4	294	4000	50	80	3.49	0.1		
	0.3	356	5000	50	100	3.49	0.1		
	4.7	57	300	10	30	3.49	1.3		30/40
	3.5	70	400	10	40	3.49	0.9		
	2.8	96	500	20	25	3.49	0.6		
	2.3	104	600	20	30	3.49	0.7		
	1.9	121	750	25	30	3.49	0.6		
	1.6	139	900	30	30	3.49	0.5		
	1.2	166	1200	30	40	3.49	0.4		
	0.9	196	1500	50	30	3.49	0.4		
	0.78	218	1800	60	30	3.49	0.3		
	0.58	261	2400	60	40	3.49	0.2		
	0.4	300	3200	80	40	3.49	0.2	30/50	
	0.4	279	4000	50	80	3.49	0.1		
	0.28	338	5000	50	100	3.49	0.1		
	1.6	141	900	30	30	4.84	1.0		
	1.2	169	1200	30	40	4.84	0.7		
	0.93	199	1500	50	30	4.84	0.7		
	0.78	222	1800	60	30	4.84	0.7		
	0.6	266	2400	60	40	4.84	0.5		
	0.5	307	3000	60	50	4.84	0.4		
	0.35	288	4000	50	80	4.84	0.3		
	0.29	311	4800	60	80	4.84	0.3	30/63	
	0.9	203	1500	30	50	6.27	1.1		
	0.78	225	1800	30	60	6.27	0.9		
0.58	276	2400	60	40	6.27	0.8			
0.47	319	3000	60	50	6.27	0.7			
0.35	306	4000	50	80	6.27	0.6			
0.28	360	5000	50	100	6.27	0.4			
0.6	330	2400	60	40	7.38	1.1			
0.47	377	3000	60	50	7.38	0.8			
0.35	355	4000	50	80	7.38	0.7			
0.28	419	5000	50	100	7.38	0.5	40/75		
0.5	405	3000	60	50	8.18	1.4			
0.35	365	4000	50	80	8.18	1.3			
0.28	431	5000	50	100	8.18	1.0			
0.09	14	37	100	10	10	1.62		0.8	25/30
	9.3	49	150	10	15	1.83		0.6	
	7.0	62	200	10	20	1.83		0.5	
	5.6	66	250	10	25	1.83		0.5	
	4.7	75	300	10	30	1.83		0.4	
	3.5	107	400	10	40	1.83		0.3	
	2.8	115	500	20	25	1.83	0.2		
	2.3	135	600	20	30	1.83	0.2		
	1.9	151	750	25	30	1.83	0.2		
	1.6	178	900	30	30	1.83	0.2		
	1.2	212	1200	30	40	1.83	0.1	25/30	
	0.9	247	1500	50	30	1.83	0.1		
	0.78	304	1800	60	30	1.83	0.1		
	0.58	340	2400	60	40	1.83	0.1		
	0.47	405	3000	60	50	1.83	0.1		
	4.7	87	300	10	30	3.49	0.8		30/40
	3.5	106	400	10	40	4.84	1.2		
	2.8	123	500	10	50	4.84	1.0		
	2.3	159	600	20	30	4.84	0.9		
	1.9	185	750	25	30	4.84	0.8		
	1.6	212	900	30	30	4.84	0.7		
	1.6	200	900	15	60	6.27	1.0		
	1.2	263	1200	30	40	6.27	0.9		
	0.93	305	1500	30	50	6.27	0.7		
	0.9	359	1500	50	30	7.38	1.1		
	0.78	404	1800	60	30	7.38	1	40/75	
	0.58	496	2400	60	40	7.38	0.7		
	0.5	608	3000	60	50	8.18	0.9		
	0.35	548	4000	50	80	8.18	0.8		
	4.7	118	300	10	30	4.84	1.2		30/50
	3.5	142	400	10	40	4.84	0.9		
	2.8	164	500	10	50	4.84	0.7		
	2.8	171	500	10	50	6.27	1.3		
	2.3	208	600	15	40	6.27	1.1		
	1.9	241	750	15	50	6.27	0.9		
	1.6	324	900	30	30	7.38	1.2		
	1.2	399	1200	30	40	7.38	0.9		
	0.78	546	1800	30	60	8.18	0.9		
	0.58	695	2400	60	40	8.18	0.9		
	0.5	883	3000	60	50	10.32	1.2	40/90	
0.35	784	4000	50	80	10.32	1.0			
0.28	928	5000	50	100	10.32	0.8			
3.5	221	400	10	40	6.27	1.0			
2.8	257	500	10	50	6.27	0.8			
2.3	362	600	20	30	7.38	1.1			
1.9	435	750	25	30	7.38	0.9			
1.6	487	900	30	30	7.38	0.8			
1.2	629	1200	30	40	8.18	1.0			
0.93	735	1500	30	50	8.18	0.8			
0.78	860	1800	60	30	10.32	1.5	50/110		
0.58	1113	2400	60	40	10.32	1.1			
0.12	14	37	100	10	10	1.62		0.8	30/63
	9.3	49	150	10	15	1.83		0.6	
	7.0	62	200	10	20	1.83		0.5	
	5.6	66	250	10	25	1.83		0.5	
	4.7	75	300	10	30	1.83		0.4	
	3.5	107	400	10	40	1.83		0.3	
	2.8	115	500	20	25	1.83		0.2	
	2.3	135	600	20	30	1.83		0.2	
	1.9	151	750	25	30	1.83	0.2		
	1.6	178	900	30	30	1.83	0.2		
1.2	212	1200	30	40	1.83	0.1	30/63		
0.9	247	1500	50	30	1.83	0.1			
0.78	304	1800	60	30	1.83	0.1			
0.58	340	2400	60	40	1.83	0.1			
0.47	405	3000	60	50	1.83	0.1			
4.7	87	300	10	30	3.49	0.8		40/75	
3.5	106	400	10	40	4.84	1.2			
2.8	123	500	10	50	4.84	1.0			
2.3	159	600	20	30	4.84	0.9			
1.9	185	750	25	30	4.84	0.8			
1.6	212	900	30	30	4.84	0.7			
1.6	200	900	15	60	6.27	1.0			
1.2	263	1200	30	40	6.27	0.9			
0.93	305	1500	30	50	6.27	0.7			
0.9	359	1500	50	30	7.38	1.1			
0.78	404	1800	60	30	7.38	1	40/75		
0.58	496	2400	60	40	7.38	0.7			
0.5	608	3000	60	50	8.18	0.9			
0.35	548	4000	50	80	8.18	0.8			
4.7	118	300	10	30	4.84	1.2		30/50	
3.5	142	400	10	40	4.84	0.9			
2.8	164	500	10	50	4.84	0.7			
2.8	171	500	10	50	6.27	1.3			
2.3	208	600	15	40	6.27	1.1			
1.9	241	750	15	50	6.27	0.9			
1.6	324	900	30	30	7.38	1.2			
1.2	399	1200	30	40	7.38	0.9			
0.78	546	1800	30	60	8.18	0.9			
0.58	695	2400	60	40	8.18	0.9			
0.5	883	3000	60	50	10.32	1.2	40/90		
0.35	784	4000	50	80	10.32	1.0			
0.28	928	5000	50	100	10.32	0.8			
3.5	221	400	10	40	6.27	1.0			
2.8	257	500	10	50	6.27	0.8			
2.3	362	600	20	30	7.38	1.1			
1.9	435	750	25	30	7.38	0.9			
1.6	487	900	30	30	7.38	0.8			
1.2	629	1200	30	40	8.18	1.0			
0.93	735	1500	30	50	8.18	0.8			
0.78	860	1800	60	30	10.32	1.5	50/110		
0.58	1113	2400	60	40	10.32	1.1			
0.18	14	37	100	10	10	1.62		0.8	30/63
	9.3	49	150	10	15	1.83		0.6	
	7.0	62	200	10	20	1.83		0.5	
	5.6	66	250	10	25	1.83		0.5	
	4.7	75	300	10	30	1.83		0.4	
	3.5	107	400	10	40	1.83		0.3	
	2.8	115	500	20	25	1.83		0.2	
	2.3	135	600	20	30	1.83		0.2	
	1.9	151	750	25	30	1.83	0.2		
	1.6	178	900	30	30	1.83	0.2		
1.2	212	1200	30	40	1.83	0.1	30/63		
0.9	247	1500	50	30	1.83	0.1			
0.78	304	1800	60	30	1.83	0.1			
0.58	340	2400	60	40	1.83	0.1			
0.47	405	3000	60	50	1.83	0.1			
4.7	87	300	10	30	3.49	0.8		40/75	
3.5	106	400	10	40	4.84	1.2			
2.8	123	500	10	50	4.84	1.0			
2.3	159	600	20	30	4.84	0.9			
1.9	185	750	25	30	4.84	0.8			
1.6	212	900	30	30	4.84	0.7			
1.6	200	900	15	60	6.27	1.0			
1.2	263	1200	30	40	6.27	0.9			
0.93	305	1500	30	50	6.27	0.7			
0.9	359	1500	50	30	7.38	1.1			
0.78	404	1800	60	30	7.38	1	40/75		
0.58	496	2400	60	40	7.38	0.7			
0.5	608	3000	60	50	8.18	0.9			
0.35	548	4000	50	80	8.18	0.8			
4.7	118	300	10	30	4.84	1.2		30/50	

motor power	output		ratio			radial force	service factor	type
	speed	torque	total	small	large			
kW	Nm	rpm		i		kN		nr
0.25	3.5	159	400	10	40	6.27	1.4	30/63
	2.8	185	500	10	50	6.27	1.2	
	3.5	336	400	10	40	7.38	1.1	40/75
	2.8	384	500	10	50	7.38	0.8	
	2.3	511	600	15	40	8.18	1.2	
	1.9	598	750	15	50	8.18	0.9	40/90
	1.6	667	900	15	60	8.18	0.8	
	1.2	943	1200	30	40	10.32	1.3	
	0.93	1064	1500	50	30	10.32	1.2	50/110
	0.78	1195	1800	60	30	10.32	1.1	
	0.6	1624	2400	60	40	13.5	1.0	
	0.47	1935	3000	60	50	13.5	0.8	63/130
	0.35	2046	4000	50	80	13.5	0.6	
	0.28	2430	5000	50	100	13.5	0.5	
	0.78	1199	1800	60	30	18	1.8	
	0.6	1446	2400	60	40	18	1.8	
	0.5	1713	3000	60	50	18	1.4	63/150
	0.4	2026	4000	50	80	18	0.9	
	0.3	2251	5000	50	100	18	0.7	
	0.37	4.7	405	300	10	30	7.38	1.0
3.5		498	400	10	40	7.38	0.7	
4.7		401	300	7.5	40	8.18	1.5	
3.5		523	400	10	40	8.18	1.2	40/90
2.8		611	500	10	50	8.18	0.9	
2.3		757	600	15	40	8.18	0.8	
1.9		949	750	25	30	10.32	1.3	
1.6		1079	900	30	30	10.32	1.2	50/110
1.2		1396	1200	30	40	10.32	0.8	
0.9		1674	1500	50	30	13.5	1.1	63/130
0.78		1887	1800	60	30	13.5	0.9	
0.78		1774	1800	60	30	18	1.2	
0.6		2141	2400	60	40	18	1.2	63/150
0.5		2535	3000	60	50	18	0.9	
0.55		4.7	638	300	10	30	10.32	2.0
	3.5	826	400	10	40	10.32	1.4	
	2.8	984	500	10	50	10.32	1.1	50/110
	2.3	1181	600	15	40	10.32	1.0	
	1.9	1411	750	25	30	10.32	0.9	
	2.8	995	500	10	50	13.5	1.6	
	1.9	1471	750	25	30	13.5	1.2	63/130
	1.2	2132	1200	30	40	13.5	0.8	
	0.78	2637	1800	60	30	18	0.8	63/150
0.75	4.7	871	300	10	30	10.32	1.5	50/110
	3.5	1126	400	10	40	10.32	1.1	
	2.8	1357	500	10	50	13.5	1.1	
	2.3	1631	600	15	40	13.5	1.0	63/130
	1.9	2005	750	25	30	13.5	0.9	
	1.6	2283	900	30	30	13.5	0.8	
	2.8	1290	500	10	50	18	1.8	
	2.3	1529	600	15	40	18	1.7	
	1.9	1783	750	25	30	18	1.3	63/150
	1.6	2215	900	30	30	18	0.9	
1.2	2680	1200	30	40	18	1.0		

motor power	output		ratio			radial force	service factor	type
	speed	torque	total	small	large			
kW	Nm	rpm		i		kN		nr
1.1	4.7	1312	300	10	30	13.5	1.3	
	3.5	1671	400	10	40	13.5	1.0	63/130
	2.8	1991	500	10	50	13.5	0.8	
	9.3	752	150	10	15	18	3.1	
	7.0	966	200	10	20	18	2.4	
	5.6	1175	250	10	25	18	1.7	
	4.7	1364	300	10	30	18	1.7	63/150
	3.5	1619	400	10	40	18	1.6	
	2.8	1893	500	10	50	18	1.2	
	2.3	2242	600	15	40	18	1.2	
1.5	1.9	2616	750	25	30	18	0.9	
	4.7	1789	300	10	30	13.5	1.0	63/130
	3.5	2279	400	10	40	13.5	0.7	
	9.3	1026	150	10	15	18	2.3	
	7	1317	200	10	20	18	1.8	
	5.6	1602	250	10	25	18	1.3	
	4.7	1860	300	10	30	18	1.3	63/150
	3.5	2208	400	10	40	18	1.2	
	2.8	2582	500	10	50	18	0.9	
	2.3	3057	600	15	40	18	0.9	

10. ATEX worm gear reducers

10.1 ATEX classification

For use in areas with an explosion risk, reducers are available that are designed and built to comply with the health and safety requirements as listed in Appendix II of the ATEX-directive 114 EG and comply with the below classification:

- Equipment group : II
- Category and Environment : Gas 2G - Dust 2D
- Zone : Gas 1 - Dust 21 and Gas 2 - Dust 22
- Temperature class : temperature T4 for 2G and 130° C for 2D

Certain motor reducer combinations are suitable and marked for Temperature class T3 for 2G or 200°C for 2G and 2D.

10.2 Executions

The Euronorm worm gear reducers are available in different configurations that comply with the ATEX regulations.

- JRST worm gear reducer with solid input shaft.
- JRSTD worm gear reducer with IEC motor flange.
- JRSTB worm gear reducer with solid input shaft with secondary worm shaft.
- JRSTDB worm gear reducer with IEC motor flange and secondary worm shaft.

In ATEX configuration the following frame sizes are available: 25, 30, 40, 50, 63, 75, 90 and 110.

10.3 Zones and temperatures

The applicability of the different reducers is indicated in the technical selection tables depending on configuration and gear ratio.

2D3D-160 The reducer can be installed in zones 21 and 22 (category 2D and 3D).
The surface temperature is less than 160 °C.

2D3D-130 The reducer can be installed in zones 21 and 22 (category 2D and 3D).
The surface temperature is less than 130 °C.

2G3G- T3 The reducer can be installed in zones 1 and 2 (category 2G and 3G).
The temperature class is T3 (max. 200 °C).

2G3G- T4 The reducer can be installed in zones 1 and 2 (category 2G and 3G).
The temperature class is T4 (max. 135 °C).

On the following page the selection tables are shown. For each type of reducer the maximum output torque is indicated, and the permissible motor power at 1400 rpm. For ATEX worm gear reducers this is also the maximum permissible input speed. A lower input speed is permitted. For temperature zones T4 and 130 °C gear ratios below 15:1 are not permitted.

Before putting ATEX reducers in use, first the document “User and Maintenance instructions for explosion safe reducers CONFORMING to ATEX” must be read and its contents applied in regards to operating these reducers.

11. Selection tables

JRST(D) 30					11 Nm	
ratio	n2	η s	η d	Mn2	n1 = 1400 min ⁻¹	
					Pn1	Rn2
	min ⁻¹	%	%	Nm	kW	N
7.5	186,7	67	85	10	0.25	630
10	140	63	82	10	0.18	770
15	93,3	55	77	10	0.13	910
20	70	50	73	10	0.10	1030
30	46,7	43	68	10	0.08	1200
40	35	39	65	10	0.06	1340
50	28	35	59	10	0.06	1440
60	23,3	31	55	11	0.05	1540
80	17,5	27	51	11	0.05	1600

JRST(D) 40					30 Nm	
ratio	n2	η s	η d	Mn2	n1 = 1400 min ⁻¹	
					Pn1	Rn2
	min ⁻¹	%	%	Nm	kW	N
7,5	186,7	71	87	29	0.71	1070
10	140	67	85	29	0.51	1310
15	93,3	60	82	29	0.37	1540
20	70	55	78	30	0.29	1760
25	56	51	75	30	0.22	2030
30	46,7	45	70	30	0.18	2200
40	35	40	65	30	0.15	2300
60	23,3	32	58	30	0.13	2300

JRST(D) 50					48 Nm	
ratio	n2	η s	η d	Mn2	n1 = 1400 min ⁻¹	
					Pn1	Rn2
	min ⁻¹	%	%	Nm	kW	N
7,5	186,7	70	88	41	1	1140
10	140	66	86	42	0.73	1390
15	93,3	59	82	42	0.54	1630
20	70	55	79	43	0.45	1810
25	56	51	76	44	0.36	2050
30	46,7	44	72	42	0.31	2170
40	35	39	67	44	0.23	2620
50	28	35	63	45	0.21	2770
60	23,3	32	59	45	0.19	2920

n2 = output speed

η s = static efficiency

η d = dynamic efficiency

Mn2 = output torque

Pn1 = input power

Rn2 = maximum radial load

JRST(D) 63					125 Nm	
ratio	n2	η s	η d	Mn2	n1 = 1400 min ⁻¹	
					Pn1	Rn2
	min ⁻¹	%	%	Nm	kW	N
7,5	186,7	71	88	115	2.7	1380
10	140	67	87	120	2	1780
15	93,3	60	83	120	1.4	2260
20	70	55	81	120	1.1	2550
25	56	51	78	120	0.94	2850
30	46,7	45	74	120	0.79	3140
40	35	40	70	120	0.66	3480
50	28	36	66	120	0.54	3740
60	23,3	33	62	125	0.47	4320

JRST(D) 75					270 Nm	
ratio	n2	η s	η d	Mn2	n1 = 1400 min ⁻¹	
					Pn1	Rn2
	min ⁻¹	%	%	Nm	kW	N
7,5	186,7	71	89	190	4.4	1080
10	140	68	88	230	3.8	1960
15	93,3	61	85	250	2.9	2550
20	70	57	82	250	2.2	3050
25	56	53	80	250	1.8	3520
30	46,7	46	76	270	1.7	3680
40	35	42	72	255	1.3	4320
50	28	38	69	220	0.95	4930
60	23,3	35	65	200	0.75	5450
80	17,5	29	60	180	0.56	6200
100	14	26	55	125	0.33	6200

JRST(D) 90					350 Nm	
ratio	n2	η s	η d	Mn2	n1 = 1400 min ⁻¹	
					Pn1	Rn2
	min ⁻¹	%	%	Nm	kW	N
7,5	186,7	73	90	250	5.9	3510
10	140	70	89	290	4.8	4160
15	93,3	64	86	330	3.8	4980
20	70	60	84	320	2.8	5790
25	56	56	82	320	2.5	6190
30	46,7	49	78	355	2.3	6790
40	35	45	85	330	1.6	7000
50	28	41	82	300	1.3	7000
60	23,3	38	69	280	0.96	7000
80	17,5	32	63	255	0.73	7000
100	14	28	59	210	0.52	7000

n2 = output speed

Mn2 = output torque

η s = static efficiency

Pn1 = input power

η d = dynamic efficiency

Rn2 = maximum radial load

JRST(D) 110					670 Nm	
ratio	n2	η s	η d	Mn2	n1 = 1400 min ⁻¹	
					Pn1	Rn2
	min ⁻¹	%	%	Nm	kW	N
7,5	186,7	72	90	500	11.8	4440
10	140	69	89	550	9.3	5540
15	93,3	63	86	600	07	6840
20	70	62	85	570	05	8000
25	56	59	84	540	4.1	8000
30	46,7	48	79	700	4.4	8000
40	35	48	78	670	3.2	8000
50	28	44	75	600	2.4	8000
60	23,3	41	72	530	1.5	8000
80	17,5	36	67	470	1.3	8000
100	14	32	63	445	1.1	8000

n2 = output speed

Mn2 = output torque

η s = static efficiency

Pn1 = input power

η d = dynamic efficiency

Rn2 = maximum radial load

12. Reducer/Motor combinations

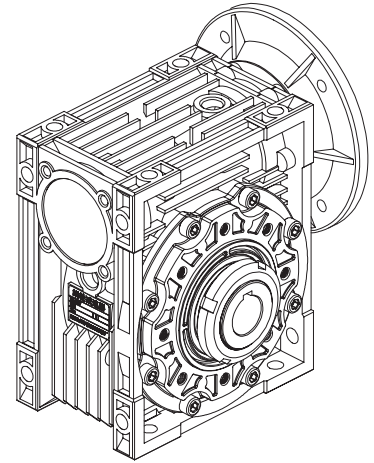
In the table below the possible motor/reducer combinations are listed. The reducer must be selected according to the selection criteria in the catalogue.

Reducer/Motor combinations								
kW	IEC	JRST(D) 30	JRST(D) 40	JRST(D) 50	W(D) 63	W(D) 75	W(D) 90	W(D) 110
0,06	56A 4	7 ...60	-	-	-	-	-	-
0,09	56B 4	7 ...20	-	-	-	-	-	-
0,12	63A 4	7 ...15	7 ...60	7 ...60	-	-	-	-
0,18	63B 4	7 ...10	7 ...30	7 ...60	-	-	-	-
0,25	71A 4	-	7 ...20	7 ...30	7 ...60	7 ...100	7 ...100	-
0,37	71B 4	-	7 ...15	7 ...15	7 ...60	7 ...80	7 ...100	-
0,55	80A 4	-	-	7 ...15	7 ...60	7 ...80	7 ...80	7 ...100
0,75	80B 4	-	-	7	7 ...40	7 ...60	7 ...60	7 ...100
1,1	90S 4	-	-	-	7 ...20	7 ...40	7 ...50	7 ...80
1,5	90LA 4	-	-	-	7 ...15	7 ...30	7 ...40	7 ...60
1,85	90LB 4	-	-	-	7 ...10	7 ...20	7 ...30	7 ...50
2,2	100LA 4	-	-	-	-	7 ...20	7 ...30	7 ...40
3	100LB 4	-	-	-	-	7 ...10	7 ...15	7 ...40
4	112M 4	-	-	-	-	7	7 ...10	7 ...30
5,5	132S 4	-	-	-	-	-	-	7 ...15
7,5	132MA 4	-	-	-	-	-	-	7 ...10

13. JMRL “wet” torque limiter

Properties

The JMRL torque limiter is oil bath immersed light and is available in the frame sizes: 040, 050, 063, 075 and 090. By fitting a torque limiter the transmission is protected against a sudden overload and damage to the reducer and other transmission components. When required the torque limiter can function as a freewheel in run back situations by careful adjustment of the locking nut.



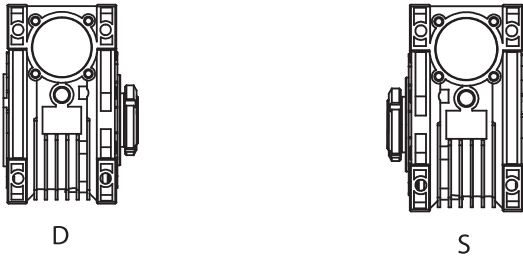
Features

- Dimensions virtually identical to the version without torque limiter.
- Mounting holes identical to the standard version
- Simple slipping torque adjustment by means of an external threaded ring.
- Slipping clutch maintenance free.
- Hollow shaft dimensions and performances equal to the standard version.

Adjustment of the slipping torque

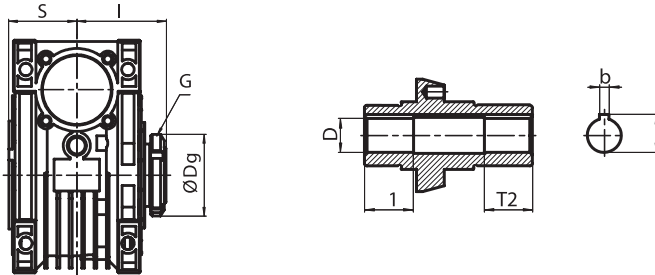
At the factory the slipping torque is adjusted to 80% of the nominal catalogue value. The transmittable torque is strongly dependant on environmental conditions as temperature, amount of wear, vibrations etc. For this reason it is advised to check the slipping torque based on the application and when required to readjust the slipping torque.

13.1 Versions



The torque limiter is supplied standard in version D, unless otherwise indicated.

13.2 Dimensions



Type	040	050	063	075	090
I	55	63.5	74	78.5	89.5
S	39	46	56	60	70
Dg	45	56	62	68	80
g	M30x1.5	M40x1.5	M45x1.5	M50x1.5	M60x1.5
b	6	8	8	8	10
t	20.8	14	18	25	25
D	Ø 18	Ø 25	Ø 25	Ø 28	Ø 35
T1	26	33	37	40	45
T2	26	33	37	40	45

14. User instructions

14.1 Properties single worm gear reducers

- The casing of reducers with frame sizes 25 up to and including 90 are made of an aluminium alloy.
- The casing of reducers with frame sizes 110 up to and including 150 are made of cast iron.
- The excellent heat dissipation properties ensure a safe and reliable operation with a high efficiency.
- The high loading capacity guarantees a stable power transmission, with minimal vibrations and noise.
- The available variants for input power and torque output provide a very wide application spectrum.
The gear casings are due to their shape and abundant mounting holes suitable for many mounting positions.

14.2 Properties combined worm gear reducer

- Combined worm gear reducers can yield very high gear ratios.
- Standard combinations available are: 25/30, 25/40, 30/50, 30/63, 40/75, 40/90, 50/110, 63/130, 63/150.
- Other combinations are possible. Consult your Euronorm contact for these combinations.
- Further the properties of single worm gear reducers equally apply to the combined worm gear reducers.

14.3 Installation instructions

- The mounting surface must be flat, rigid and sufficiently strong. Also all fasteners must be tightened properly and the construction must have sufficient resistance against shock loadings.
- All shafts must be properly aligned before starting up the drive.
- Tolerances: All shafts have a h6 tolerance and bores a H6 tolerance. All components to be fitted to the shafts or bores must possess the appropriate tolerance to guarantee a correct functioning. Incorrect tolerances may cause irreparable damage to shafts, bores, bearings etc.
- All components that introduce extra radial forces such V-belt pulleys, chainwheels, gearwheels and such need to be fitted as close as possible to the bearing to prevent bending of the output shaft as much as possible.
- Before mounting a motor directly to the worm gear reducer (IEC) the motor shaft and key must be suitably greased to prevent the corroding together of the components.
- If the motor weight is higher than usual, the motor must be additionally supported.

14.4 User instructions

- Check before mounting/using the reducer all ordering specifications in particular the frame size, gear ratio and the manner in which the power source is connected. Also the manner in which the (hollow) output shaft is connected, sense of rotation of the motor.
- The ideal input speed lies between 600 and 1800 rpm. Input speeds above 2000 rpm must be avoided.
- Never putt the full load on the reducer when new, gradually increase the load while running in.
- The worm gear reducers with frame sizes 25 up to and including 90 are filled with synthetic oil according ISO VG 320. After 10.000 operating hours the oil needs to be replaced.
- The worm gear reducers with frame sizes 110 up to and including 150 are filled to the correct level by Euronorm with a mineral oil die according to ISO VG 460. The oil level is depending on the mounting position The reducers are fitted with drain-and breather/filler plugs, while a level glass is provided to check the oil level. After installation a rubber seal must be removed from breather pug to enable it to function.
- After the first 500 hours of operation the oil must be drained and the inside of the reducer must be cleaned. After cleaning the reducer it must be re-filled to the correct level depending on the mounting position (see page 23). After this the oil needs to be changed after every 5000 operating hours.
- The maximum permissible oil temperature is 95°C. After exceeding this value the oil quality must be checked regularly and if necessary be replaced.
- When the ambient temperature deviates more than 5 °C from the highest or lowest permissible temperature (see table) Euronorm must be contacted.

15. Lubrication instructions

15.1 Brands and Types lubricating oil

type	025-090	110-150	110-150
Oil type	Synthetic lubrication oil	Mineral lubrication oil	Mineral lubrication oil
Ambient temperature	-25 – +50 °C	-5 – +40 °C	-15 – +25 °C
ISOVG	ISO VG 320	ISO VG 460	ISO VG 220
AG IP	TELIUM VSF320	BLASIA460	BLASIA220
SHELL	TIVELA S320	TIVELA S460	TIVELA S220
ESSO	S220	SPARTAN EP460	SPARTAN EP220
MOBIL	GLYGOYLEHE320	MOBIL GEAR 634XP	MOBILGEAR630XP
CASTROL	ALPHASYN PG320	ALPHA MAX 460	ALPHA MAX 220
BP	ENERGOLSG-XP320	ENERGOLGR-XP460	ENERGOLGR-XP220

15.2 Oil volume and mounting positions

Mounting positions										
type	025	030	040	050	063	075	090	110	130	150
M1								3	4.5	7
M5 / M6								2.5	3.5	5.4
M3	0.02	0.04	0.08	0.15	0.3	0.55	1	2.2	3.3	5.1
M4								3	4.5	7
M5								2.2	3.3	5.1

16. Errors

Storingen		
Error	Cause	Remedy
Overheating	Incorrect or loose connection between motor, reducer or driven machine	Align and mount correctly
	Load too high	Reduce the load
	High oil seal friction	Lubricate the oil seal
	*Too much or too little oil	Adjust the oil level (see table)
	*Oil contaminated or wrong type/viscosity	Change the oil
Vibration	Incorrect or loose connection between motor, reducer or driven machine	Find the cause and reinstall correctly
	Tooth surfaces worn out or damaged	Replace the worm shaft and worm gear or the complete reducer
	Worn out bearing	Fit new bearings
	Loose fasteners	Tighten the fasteners
Noise	Incorrect or loose connection between motor, reducer or driven machine	Align and mount correctly
	Damaged bearing or worn	Replace the bearing
	Incorrect engagement of gear teeth	Replace the worm shaft and worm gear or the complete reducer
	Too little oil	Adjust the oil level (see table)
Oil leakage	Oil seal faulty or worn out	Replace the oil seal
	input or output shaft worn out at oil seal location	Replace the shaft involved or the complete reducer
	Loose oil plug	Tighten the oil plug
	Level glass damaged or loose	Replace or tighten the level glass
Rapid wear of contact surfaces of worm gear and worm wheel	Load too high	Reduce the load
	* Oil not too specification	Replace with the correct oil
	* Too little oil	Adjust the oil level (see table)
	Oil was not replaced in time	Change oil according the instructions
	Overheating during operation	1) See errors 'overheating' 2) Take measures to lower the ambient temperature

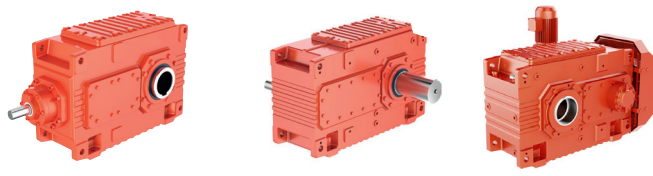
* error often appearing after the reducer oil has been changed.

Please contact Euronorm for errors not listed above.

GEAR MOTORS



HEAVY DUTY GEAR BOXES



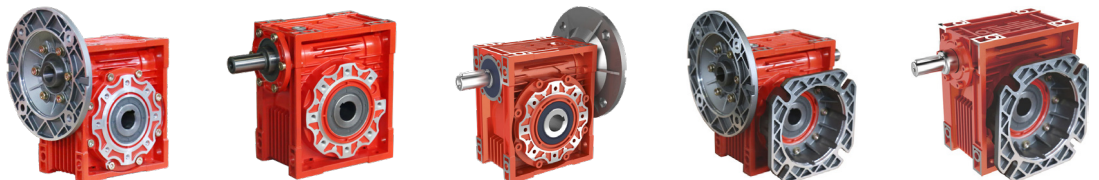
PLANETARY GEAR BOXES



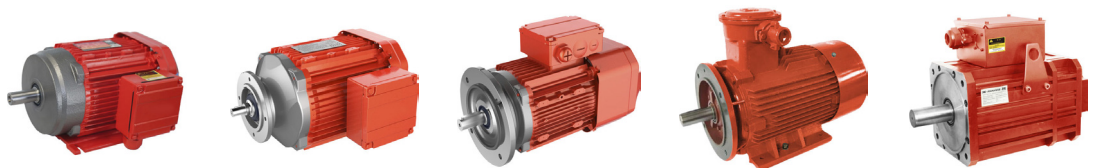
CRES DRIVES



WORM GEAR REDUCERS



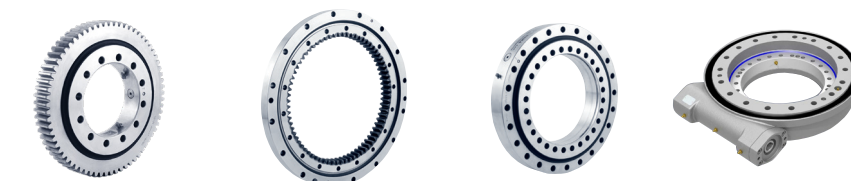
ELECTRIC MOTORS



VARIABLE-FREQUENCY DRIVE & ENCODERS



SLEWING RINGS / DRIVES





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