



Specialised Air Motors and Transmission

Factory 19 / 5 Lyn Parade PRESTONS NSW 2170

PH: 02 9607 4100 FAX: 02 9607 4200

Nseries

PLANETARY GEAR UNIT



Part 3

sales@samt.com.au

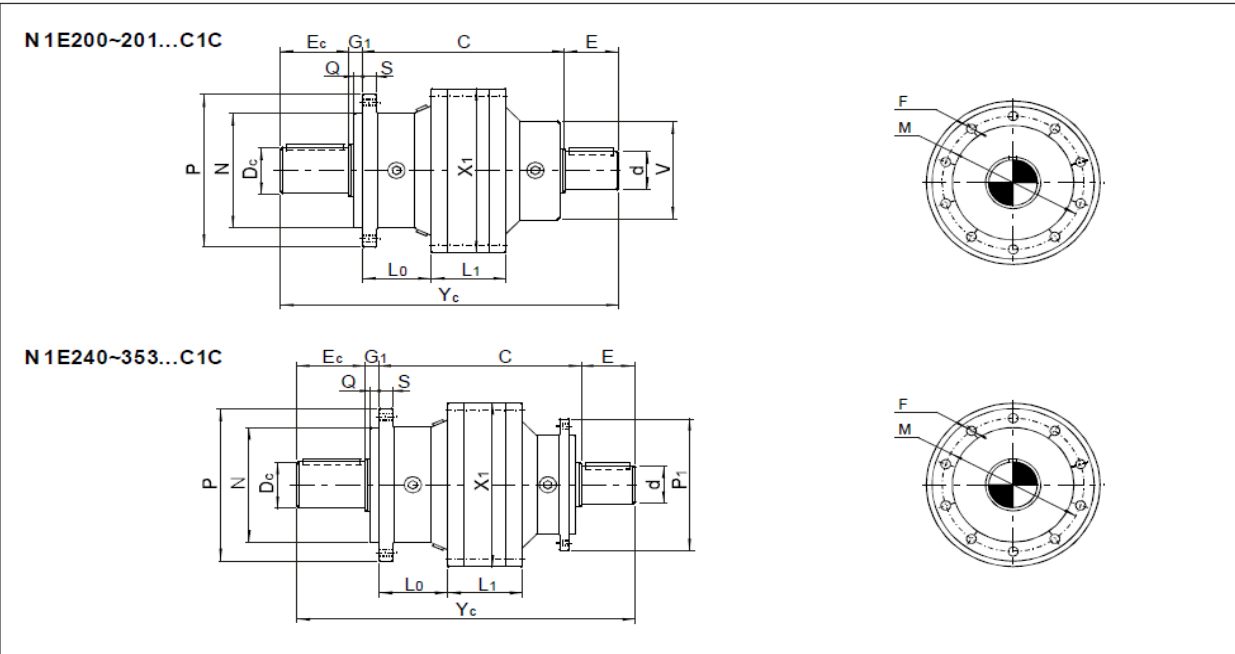


Specialised Air Motors and Transmission

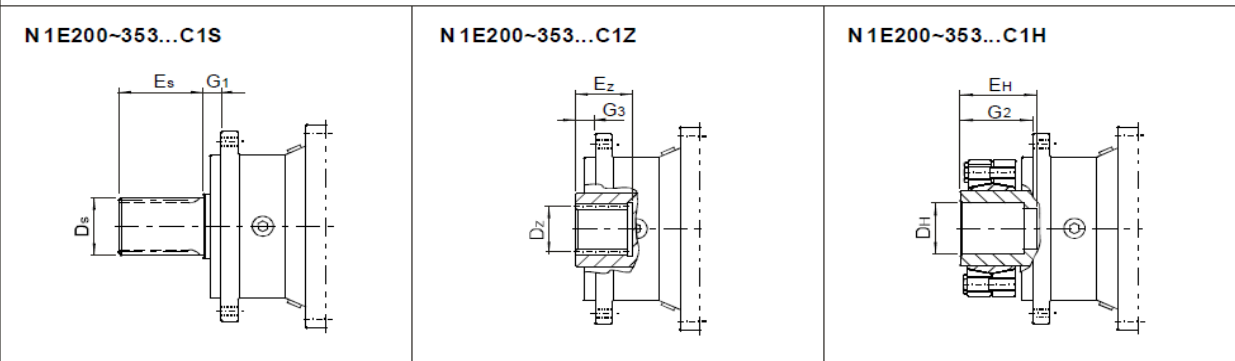
www.tonson-motor.com.au

Mounting dimensions

planetary gear reducer
 1 stage planetary gear
 in line transmission
 size 200~353



Other shaft ends



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

bevel-planetary gear reducer

1 stage planetary gear

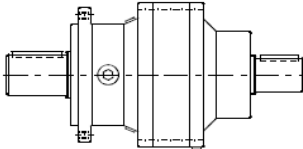
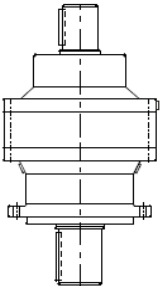
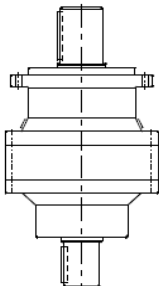
in line transmission

size 200-353

size	X ₁ Ø	L ₁	C	d Ø	E	D _c Ø	E _c	D _s	E _s	D _H Ø	E _H	D _z
200	200	49	165	28	58	42	82	EXT 24zx2mx30	55	50	72	INT 24zx2mx30
201	200	61	40	28	58	50	82	EXT 24zx2mx30	55	50	72	INT 24zx2mx30
240	240	63	256	60	82	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
241	240	78	271	65	105	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
280	280	72	384	65	105	80	130	EXT 34zx2mx30	90	85	145	INT 34zx2mx30
353	353	92	380	80	130	90	130	EXT 40zx2mx30	90	100	140	INT 40zx2mx30

size	E _z	G ₁	G ₂	G ₃	L ₀	M Ø	N Øf7	Q	P Ø	S	P ₁ Ø	V Ø	Y _c	weight
200	42.5	6	50	6	62.5	165	110	5	185	12	-	124	311	21
201	42.5	6	56	6	62.5	165	110	5	185	12	-	124	323	24
240	54	15	85	15	89	195	150	14	220	18	220	-	458	43
241	54	15	85	15	89	195	150	14	220	18	220	-	496	48
280	82	40	115	40	142	250	200	15	280	22	220	-	632	87
353	85	36	120	36	124	295	230	10	325	25	220	-	676	138

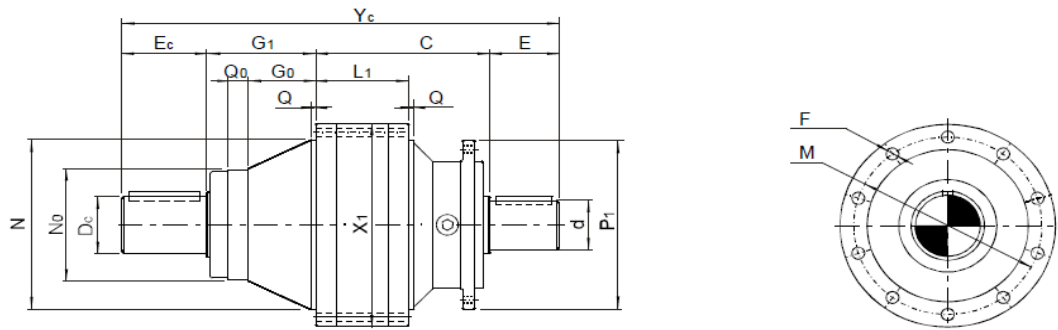
Mounting positions and oil quantity(L)

B5	V1	V3	size	B5	V1,V3
					
			201	0.65	1.1
			240	0.95	1.7
			241	1.25	2.2
			280	2.0	3.2
			353	3.0	5.5

Mounting dimensions

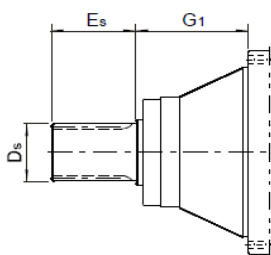
planetary gear reducer
 1 stage planetary gear
 in line transmission
 size 354~446

N 1E354~446...C2C

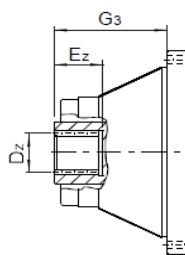


Other shaft ends

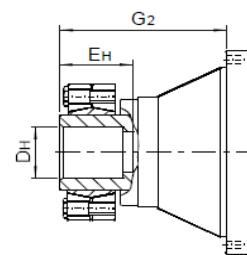
N 1E354~446...C2S



N 1E354~446...C2Z



N 1E354~446...C2H



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

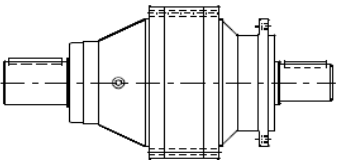
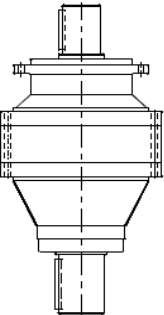
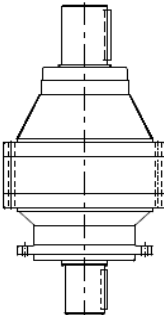
Mounting dimensions

planetary gear reducer
 1 stage planetary gear
 in line transmission
 size 354~446

size	X ₁ ∅	L ₁	C	d ∅	E	D _C ∅	E _C	D _S	E _S	D _H ∅	E _H	D _Z
354	353	138	408	80	130	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
355	358	139	408	80	130	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
428	428	140	397	80	130	110	165	EXT 39zx3mx30	130	130	180	INT 39zx3mx30
429	428	184	425	90	170	120	165	EXT 39zx3mx30	130	130	180	INT39zx3mx30
445	445	175	436	90	170	130	170	EXT 42zx3mx30	130	140	205	INT 42zx3mx30
446	445	175	436	90	170	140	170	EXT 42zx3mx30	130	140	205	INT42zx3mx30

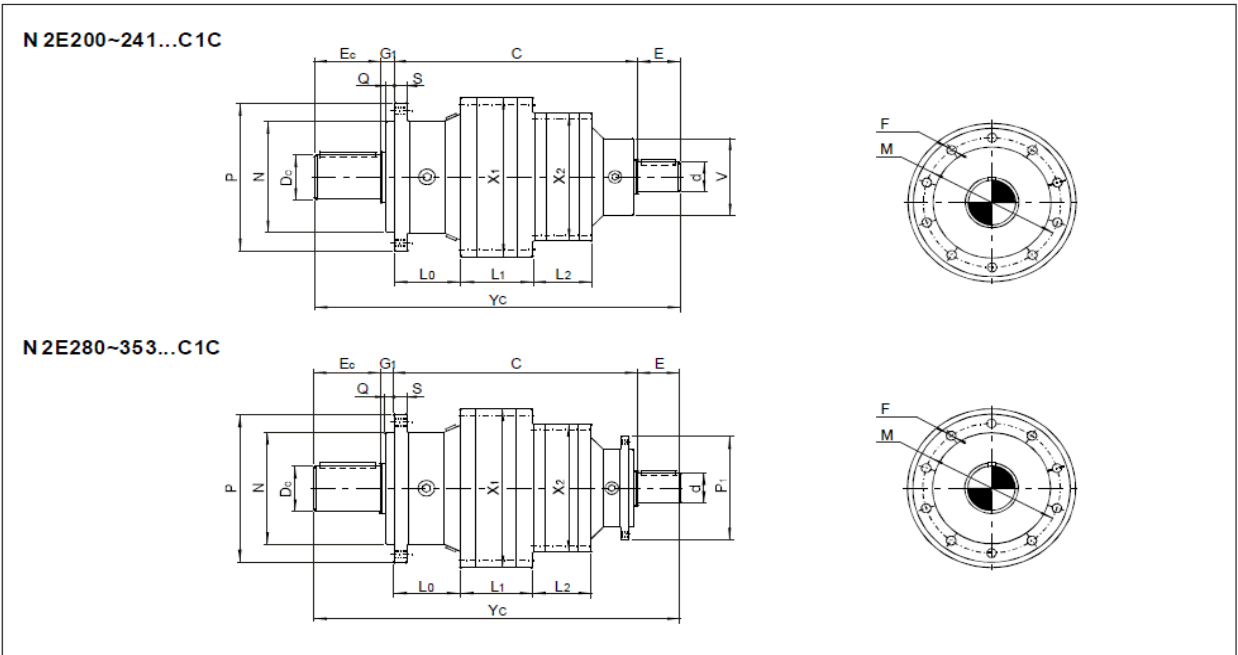
size	E _Z	G ₀	G ₁	G ₂	G ₃	M ∅	N ∅f7	N ₀ ∅f7	Q	Q ₀	P ₁ ∅	Y _C	weight
354	75	72	141	235	141	314	278	225	8.5	25	280	810	170
355	75	72	141	235	141	314	278	225	8.5	25	280	810	183
428	107	135	210	320	210	390	358	230	10	40	280	902	255
429	107	135	210	320	210	390	358	230	10	40	325	970	301
445	110	152	227	362	227	415	385	260	13	40	325	1003	369
446	110	152	227	362	227	415	385	260	13	40	325	1003	369

Mounting positions and oil quantity(L)

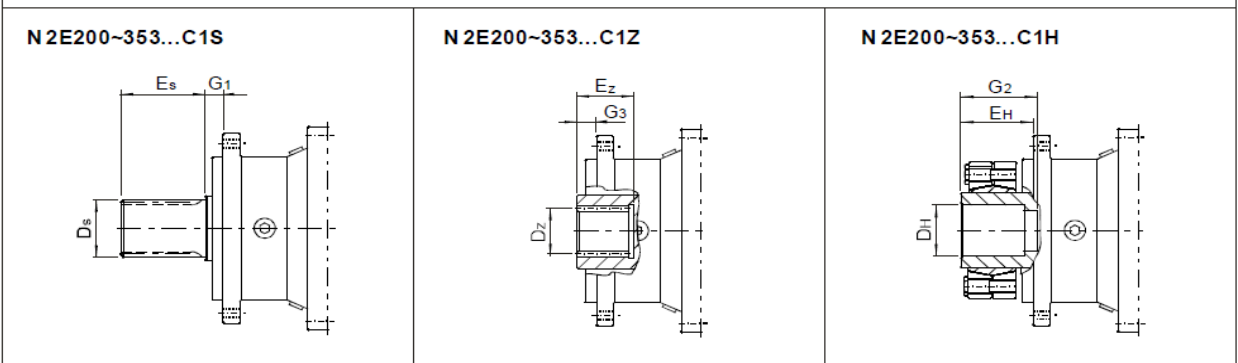
B5	V1	V3	size	B5	V1,V3
					
			355	5.6	9.8
			428	6.6	11.6
			429	8.6	15.1
			445	10.7	18.7
			446	10.7	18.7

Mounting dimensions

planetary gear reducer
 2 stage planetary gear
 in line transmission
 size 200~353



Other shaft ends



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

planetary gear reducer
 2 stage planetary gear
 in line transmission
 size 200–353

size	X ₁ ∅	L ₁	X ₂ ∅	L ₂	C	d ∅	E	D _c ∅	E _c	D _s	E _s	D _H ∅	E _H	D _z
200	200	49	200	48	213	28	58	42	82	EXT 24zx2mx30	55	50	72	INT 24zx2mx30
201	200	61	200	48	225	28	58	50	82	EXT 24zx2mx30	55	50	72	INT 24zx2mx30
240	240	63	200	48	284	28	58	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
241	240	78	200	60	311	40	58	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
280	280	72	240	80	398	48	82	80	130	EXT 34zx2mx30	90	85	145	INT 34zx2mx30
353	353	92	240	76	395	48	82	90	130	EXT 40zx2mx30	90	100	140	INT 40zx2mx30

size	E _z	G ₁	G ₂	G ₃	L ₀	M ∅	N ∅f7	Q	P ∅	S	P ₁ ∅	V ∅	Y _c	weight
200	42.5	6	50	6	62.5	165	110	5	185	12	–	124	359	29
201	42.5	6	56	6	62.5	165	110	5	185	12	–	124	371	32
240	54	15	85	15	89	195	150	14	220	18	–	124	462	51
241	54	15	85	15	89	195	150	14	220	18	–	124	489	59
280	82	40	115	40	142	250	200	15	280	22	220	–	650	102
353	85	36	120	36	124	295	230	10	325	25	220	–	643	153

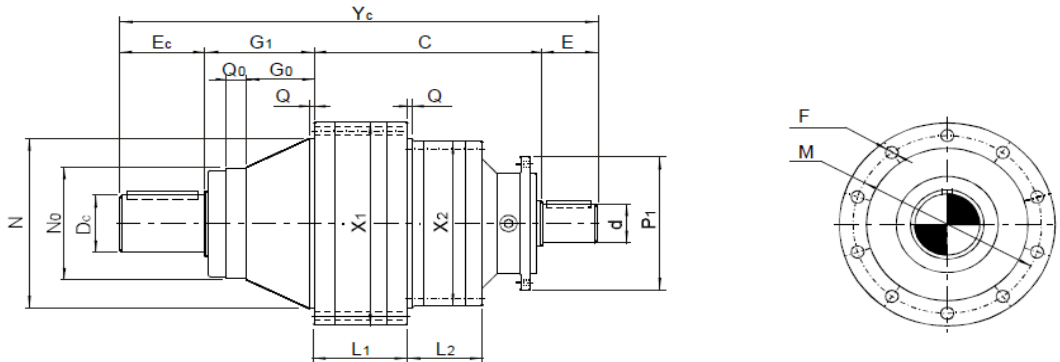
Mounting positions and oil quantity(L)

B5	V1	V3	size	B5	V1,V3
			200	0.9	1.6
201	1.1	1.9			
240	1.4	2.5			
241	1.9	3.3			
280	2.8	4.9			
353	4.1	7.2			

Mounting dimensions

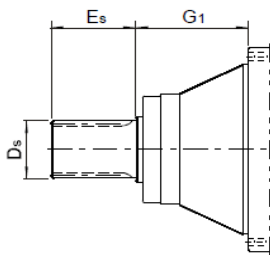
planetary gear reducer
 2 stage planetary gear
 in line transmission
 size 354-696

N 2E354-696...C2C

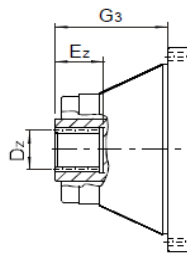


Other shaft ends

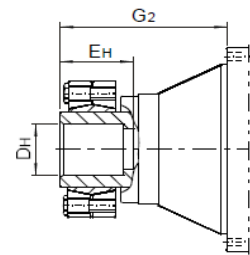
N 2E354-696...C2S



N 2E354-696...C2Z



N 2E354-696...C2H



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

planetary gear reducer
 2 stage planetary gear
 in line transmission
 size 354~696

size	X ₁ ∅	L ₁	X ₂ ∅	L ₂	C	d ∅	E	D _C ∅	E _C	D _S	E _S	D _H ∅	E _H	D _Z
354	353	138	240	79	320	60	105	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
355	353	139	280	104	413	60	105	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
428	428	140	280	113	424	65	105	110	165	EXT 39zx3mx30	130	130	180	INT 39zx3mx30
429	428	184	353	82	430	65	105	120	165	EXT 39zx3mx30	130	130	180	INT 39zx3mx30
445	445	175	353	129	573	80	130	130	170	EXT 42zx3mx30	130	140	205	INT 42zx3mx30
446	445	175	353	129	573	80	130	140	170	EXT 42zx3mx30	130	140	205	INT 42zx3mx30
542	542	199	428	159	615	80	130	160	210	EXT 30zx5mx30	170	170	250	INT 30zx5mx30
543	542	219	428	181	641	90	170	170	210	EXT 30zx5mx30	170	170	250	INT 30zx5mx30
695	695	200	445	237	698	90	170	190	260	EXT 36zx5mx30	200	200	307	INT 36zx5mx30
696	695	230	445	237	728	90	170	200	260	EXT 36zx5mx30	200	200	307	INT 36zx5mx30

size	E _Z	G ₀	G ₁	G ₂	G ₃	M ∅	N ∅f7	N ₀ ∅f7	Q	Q ₀	P ₁ ∅	Y _C	weight
354	75	72	141	235	141	314	278	225	8.5	25	220	696	170
355	75	72	141	235	141	314	278	225	8.5	25	220	696	183
428	107	135	210	320	210	390	358	230	10	40	220	904	255
429	107	135	210	320	210	390	358	230	10	40	220	910	301
445	110	152	227	362	227	415	385	260	13	40	280	1100	369
446	110	152	227	362	227	415	385	260	13	40	280	1100	369
542	120	224	279	427	279	503	460	300	13	32	280	1234	588
543	120	224	279	437	279	503	460	300	13	32	325	1300	699
695	140	-	152	318	152	635	560	-	20	-	325	1280	1125
696	140	-	152	333	152	635	560	-	20	-	325	1310	1213

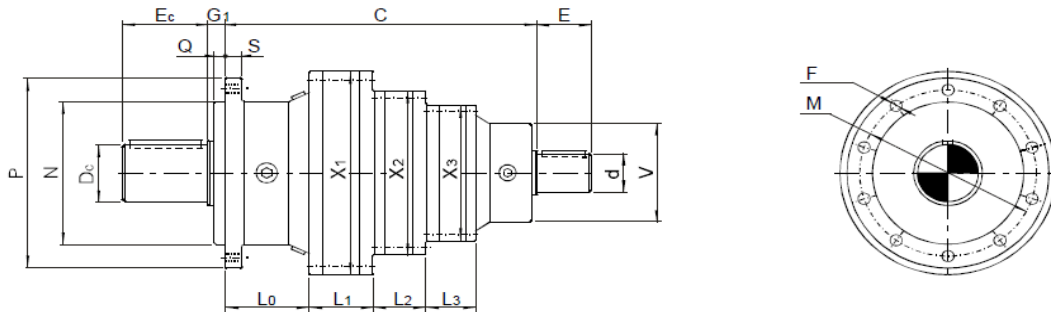
Mounting positions and oil quantity(L)

B5	V1	V3	size	B5	V1,V3
			354	5.1	8.9
355	5.6	9.8			
428	6.6	11.6			
429	8.6	15.1			
445	10.7	18.7			
446	10.7	18.7			
542	14	25			
543	17.2	30			
695	22	39			
696	26	46			

Mounting dimensions

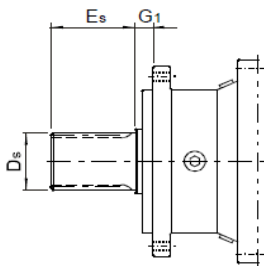
planetary gear reducer
 3 stage planetary gear
 in line transmission
 size 200~353

N 3E200~353...C1C

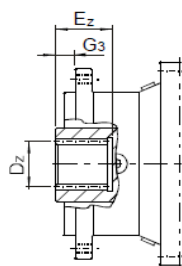


Other shaft ends

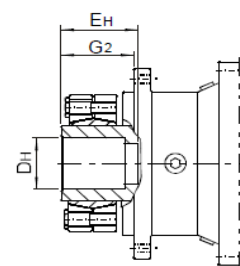
N 3E200~353...C1S



N 3E200~353...C1Z



N 3E200~353...C1H



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

planetary gear reducer

3 stage planetary gear

in line transmission

size 200~353

size	X ₁ Ø	L ₁	X ₂ Ø	L ₂	X ₃ Ø	L ₃	C	d Ø	E	D _c Ø	E _c	D _s	E _s	D _H Ø	E _H
200	200	49	200	50	200	48	263	28	58	42	82	EXT 24zx2mx30	55	50	72
201	200	61	200	50	200	48	275	28	58	50	82	EXT 24zx2mx30	55	50	72
240	240	63	200	50	200	48	303	28	58	65	105	EXT 28zx2mx30	68	75	100
241	240	78	200	62	200	48	330	28	58	65	105	EXT 28zx2mx30	68	75	100
280	280	72	240	72	200	48	418	40	58	80	130	EXT 34zx2mx30	90	85	145
353	353	92	240	67	200	60	427.5	40	58	90	130	EXT 40zx2mx30	90	100	140

size	D _z	E _z	G ₁	G ₂	G ₃	L ₀	M Ø	N Øf7	Q	P Ø	S	V Ø	Y _c	weight
200	INT 24zx2mx30	42.5	6	50	6	62.5	165	110	5	185	12	124	409	37
201	INT 24zx2mx30	42.5	6	56	6	62.5	165	110	5	185	12	124	421	39
240	INT 28zx2mx30	54	15	85	15	89	195	150	14	220	18	124	481	56
241	INT 28zx2mx30	54	15	85	15	89	195	150	14	220	18	124	508	64
280	INT 34zx2mx30	82	40	115	40	142	250	200	15	280	22	124	646	95
353	INT 40zx2mx30	85	36	120	36	124	295	230	10	325	25	124	652	150

Mounting positions and oil quantity(L)

B5	V1	V3	size	B5	V1,V3
			200	1.3	2.3
201	1.5	2.6			
240	1.8	3.2			
241	2.3	4.0			
280	3.2	5.6			
353	4.7	8.2			

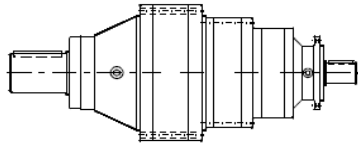
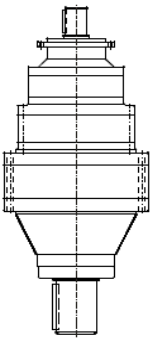
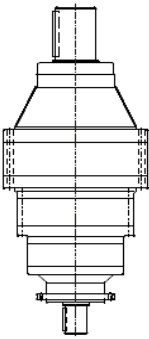
Mounting dimensions

planetary gear reducer
3 stage planetary gear
in line transmission
size 354~696

size	X ₁ ∅	L ₁	X ₂ ∅	L ₂	X ₃ ∅	L ₃	C	d ∅	E	D _c ∅	E _c	D _s	E _s	D _H ∅	E _H
354	353	138	240	70	200	60	352.5	40	58	100	130	EXT 29zx3mx30	90	110	160
355	353	139	280	104	240	67	413.5	48	82	100	130	EXT 29zx3mx30	90	110	160
428	428	140	280	113	240	67	424	48	82	110	165	EXT 39zx3mx30	130	130	180
429	428	184	353	82	240	75	445	48	82	120	165	EXT 39zx3mx30	130	130	180
445	445	175	353	128	240	79	485	60	105	130	170	EXT 42zx3mx30	130	140	205
446	445	175	353	128	280	104	578.5	60	105	140	170	EXT 42zx3mx30	130	140	205
542	542	199	428	137	280	113	620	65	105	160	210	EXT 30zx5mx30	170	170	250
543	542	219	428	181	353	82	646	65	105	170	210	EXT 30zx5mx30	170	170	250
695	695	200	445	237	353	129	835.5	80	130	190	260	EXT 36zx5mx30	200	200	307
696	695	230	445	237	353	129	865.5	80	130	200	260	EXT 36zx5mx30	200	200	307

size	D _z	E _z	G ₀	G ₁	G ₂	G ₃	M ∅	N ∅f7	N ₀ ∅f7	Q	Q ₀	P ₁ ∅	V ∅	Y _c	weight
354	INT 29zx3mx30	75	72	141	235	141	314	278	225	8.5	25	-	124	682	166
355	INT 29zx3mx30	75	72	141	235	141	314	278	225	8.5	25	220	-	767	196
428	INT 39zx3mx30	107	135	210	320	210	390	358	230	10	40	220	-	881	267
429	INT 39zx3mx30	107	135	210	320	210	390	358	230	10	40	220	-	902	318
445	INT 42zx3mx30	110	152	227	362	227	415	385	260	13	40	220	-	987	373
446	INT 42zx3mx30	110	152	227	362	227	415	385	260	13	40	220	-	1081	386
542	INT 30zx5mx30	120	224	279	427	279	503	460	300	13	32	220	-	1214	605
543	INT 30zx5mx30	120	224	279	437	279	503	460	300	13	32	220	-	1240	696
695	INT 36zx5mx30	140	-	152	318	152	635	560	-	20	-	280	-	1378	1152
696	INT 36zx5mx30	140	-	152	333	152	635	560	-	20	-	280	-	1408	1240

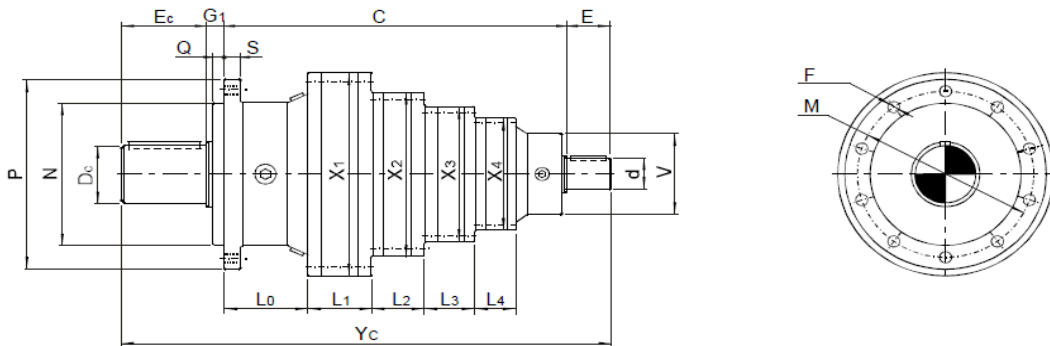
Mounting positions and oil quantity(L)

B5	V1	V3	size	B5	V1,V3
					
			355	6.4	11.2
			428	7.4	13
			429	9.7	17
			445	11.8	21
			446	12.3	22
			542	15.6	27
			543	19.6	34
			695	25	44
			696	29	51

Mounting dimensions

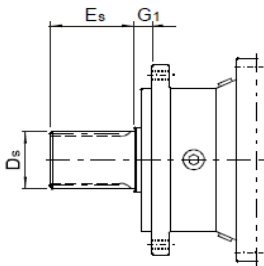
planetary gear reducer
 4 stage planetary gear
 in line transmission
 size 200~353

N 4E200~353...C1C

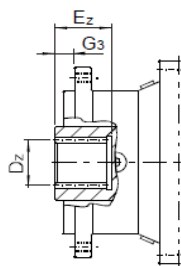


Other shaft ends

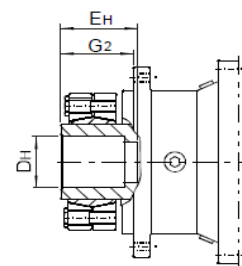
N 4E200~353...C1S



N 4E200~353...C1Z



N 4E200~353...C1H



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

planetary gear reducer
4 stage planetary gear
in line transmission
size 200~353

size	X ₁ ∅	L ₁	X ₂ ∅	L ₂	X ₃ ∅	L ₃	X ₄ ∅	L ₄	C	d ∅	E	D _c ∅	E _c	D _s	E _s	D _H ∅	E _H
240	240	63	200	50	200	50	200	48	303	28	58	65	105	EXT 28zx2mx30	68	75	100
241	240	78	200	62	200	50	200	48	330	28	58	65	105	EXT 28zx2mx30	68	75	100
280	280	72	240	72	200	50	200	48	437	28	58	80	130	EXT 34zx2mx30	90	85	145
353	353	92	240	67	200	60	200	50	446.5	28	58	90	130	EXT 40zx2mx30	90	100	140

size	D _z	E _z	G ₁	G ₂	G ₃	L ₀	M ∅	N ∅f7	Q	P ∅	S	V ∅	Y _c	weight
240	INT 28zx2mx30	54	15	85	15	89	195	150	14	220	18	124	531	63
241	INT 28zx2mx30	54	15	85	15	89	195	150	14	220	18	124	558	71
280	INT 34zx2mx30	82	40	115	40	142	250	200	15	280	22	124	665	100
353	INT 40zx2mx30	85	36	120	36	124	295	230	10	325	25	124	671	155

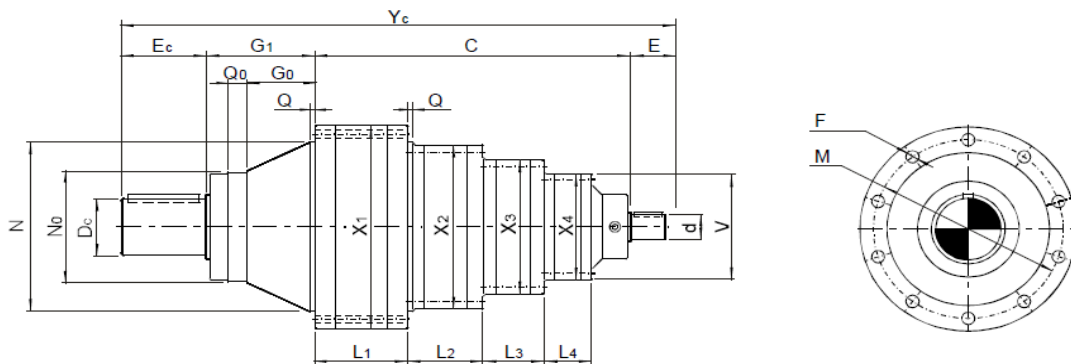
Mounting positions and oil quantities(L)

B5	V1	V3	size	B5	V1,V3
			240	2.2	3.9
241	2.7	4.7			
280	3.6	6.3			
353	5.1	8.9			

Mounting dimensions

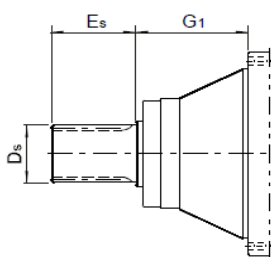
planetary gear reducer
 4 stage planetary gear
 in line transmission
 size 354~445

N 4E354~445...C2C

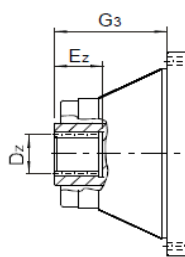


Other shaft ends

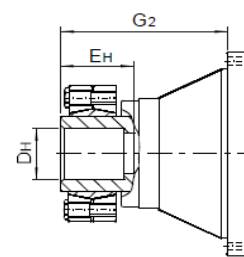
N 4E354~445...C2S



N 4E354~445...C2Z



N 4E354~445...C2H



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

planetary gear reducer

4 stage planetary gear

in line transmission

size 354~445

size	X ₁ Ø	L ₁	X ₂ Ø	L ₂	X ₃ Ø	L ₃	X ₄ Ø	L ₄	C	d Ø	E	D _c Ø	E _c	D _s	E _s	D _H Ø	E _H
354	353	138	240	70	200	60	200	50	371.5	28	58	100	130	EXT 29zx3mx30	90	110	160
355	353	139	280	104	240	58	200	48	433.5	40	58	100	130	EXT 29zx3mx30	90	110	160
428	428	140	280	113	240	58	200	48	444	40	58	110	165	EXT 39zx3mx30	130	130	180
429	428	184	353	82	240	67	200	60	477	40	58	120	165	EXT 39zx3mx30	130	130	180
445	445	175	353	128	240	70	200	60	517	40	58	130	170	EXT 42zx3mx30	130	140	205

size	D _z	E _z	G ₀	G ₁	G ₂	G ₃	M Ø	N Øf7	N ₀ Øf7	Q	Q ₀	P ₁ Ø	V Ø	Y _c	weight
354	INT 29zx3mx30	75	72	141	235	141	314	278	225	8.5	25	-	124	701	170
355	INT 29zx3mx30	75	72	141	235	141	314	278	225	8.5	25	-	124	763	183
428	INT 39zx3mx30	107	135	210	320	210	390	358	230	10	40	-	124	877	255
429	INT 39zx3mx30	107	135	210	320	210	390	358	230	10	40	-	124	910	301
445	INT 42zx3mx30	110	152	227	362	227	415	385	260	13	40	-	124	972	369

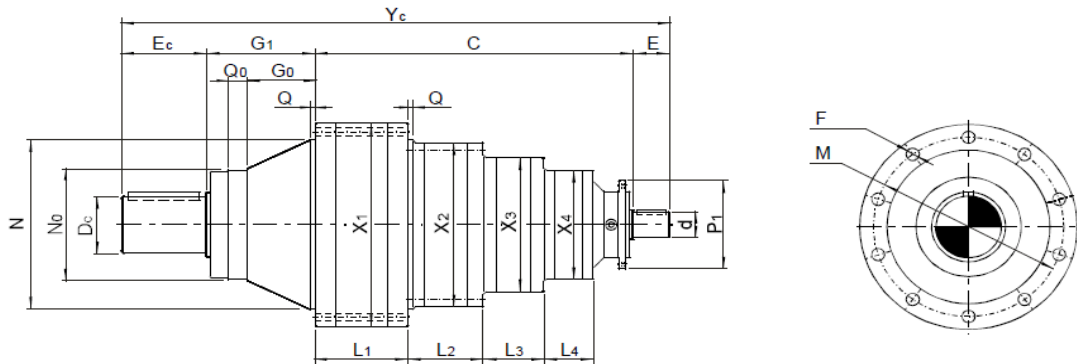
Mounting positions and oil quantity(L)

B5	V1	V3	size	B5	V1,V3
			354	6.1	10.7
355	6.8	11.9			
428	7.8	13.7			
429	10.3	18			
445	12.4	22			
446	13.1	23			
542	16.4	29			
543	21	36			
695	27	47			
696	31	54			

Mounting dimensions

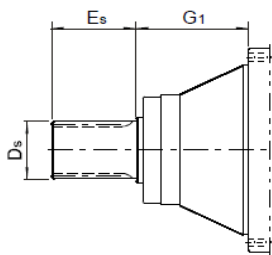
planetary gear reducer
 4 stage planetary gear
 in line transmission
 size 446~696

N 4E446~696...C2C

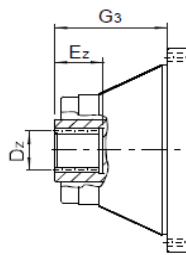


Other shaft ends

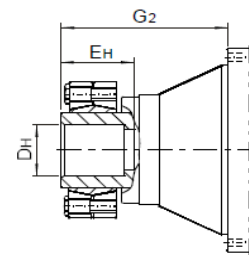
N 4E446~696...C2S



N 4E446~696...C2Z



N 4E446~696...C2H



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

planetary gear reducer

4 stage planetary gear

in line transmission

size 446~696

size	X ₁ Ø	L ₁	X ₂ Ø	L ₂	X ₃ Ø	L ₃	X ₄ Ø	L ₄	C	d Ø	E	D _c Ø	E _c	D _s	E _s	D _H Ø	E _H
446	445	175	353	129	280	104	240	68	578.5	48	82	140	170	EXT 42z×3mx30	130	140	205
542	542	199	428	159	280	113	240	67	620	48	82	160	210	EXT 30z×5mx30	170	170	250
543	542	219	428	181	353	82	240	75	661	48	82	170	210	EXT 30z×5mx30	170	170	250
695	695	200	445	237	353	129	280	104	840	60	105	190	260	EXT 36z×5mx30	200	200	307
696	695	230	445	237	353	129	280	104	870	60	105	200	260	EXT 36z×5mx30	200	200	307

size	D _z	E _z	G ₀	G ₁	G ₂	G ₃	M Ø	N Øf7	N ₀ Ø	Q	Q ₀	P ₁ Ø	V Ø	Y _c	weight
446	INT42z×3mx30	110	152	227	362	227	415	385	260	13	40	220	–	1081	369
542	INT 30z×5mx30	120	224	279	427	279	503	460	300	13	32	220	–	1214	588
543	INT 30z×5mx30	120	224	279	437	279	503	460	300	13	32	220	–	1240	699
695	INT 36z×5mx30	140	–	152	318	152	635	560	–	20	–	220	–	1378	1125
696	INT 36z×5mx30	140	–	152	333	152	635	560	–	20	–	220	–	1408	1213

Mounting positions and oil quantity(L)

B5	V1	V3	size	B5	V1,V3
			446	13.1	23
542	16.4	29			
543	21	36			
695	27	47			
696	31	54			

TECHNICAL DATA

Technical data for right angle gear reducer



TECHNICAL DATA

Right angle gear reducer technical data

stage	i N	Gear reducer size															
		200	201	240	241	280	353	354	355	428	429	445	446	542	543	695	696
		MN ₂ N.m															
CE	10.0	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	12.5	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	15.0	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	18.0	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	21.2	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	25.0	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	30.0	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	35.5	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
C2E	35.5	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	42.5	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	50	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	60	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	71	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	85	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	100	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	125	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	150	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	180	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	212	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
250	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900	
C3E	150	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	180	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	212	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	250	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	300	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	355	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	425	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	500	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	600	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	710	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	850	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	1000	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	1250	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	1500	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
	1800	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900
2120	1300	1950	2620	3900	5100	6590	8610	11500	13500	16900	21000	28000	39000	48000	74900	83900	

TECHNICAL DATA

Right angle gear reducer technical data

ATTENTION!

Selecting gear reducer is advised performing following step:

confirm the output speed n_2 (using speed) and output power (using power) P_2 , perform following formula to calculate torque.

confirm service factor s , see page 8;

perform formula $M_2 \times fs \leq M_{N2}$ to confirm gear reducer size;

verify $n_2 \times i_n \leq n_1$, see page 6;

verify thermal power $R \leq P_{Tn}$, see page 6,7

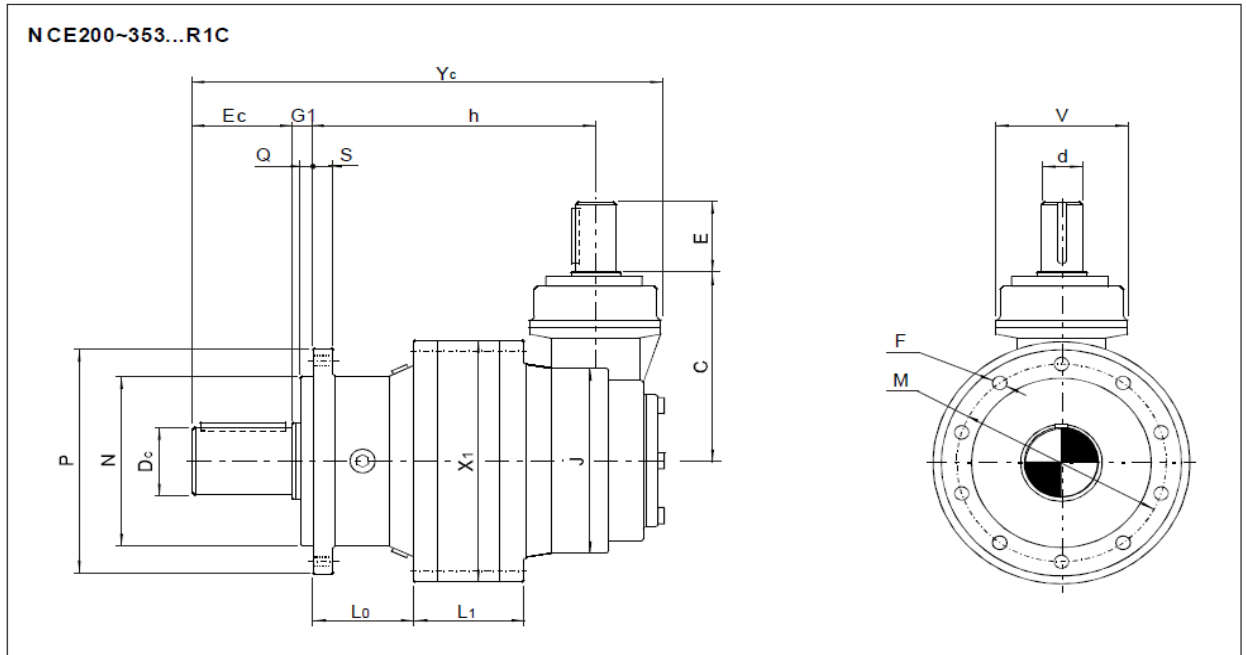
Mounting dimensions

bevel-planetary gear reducer

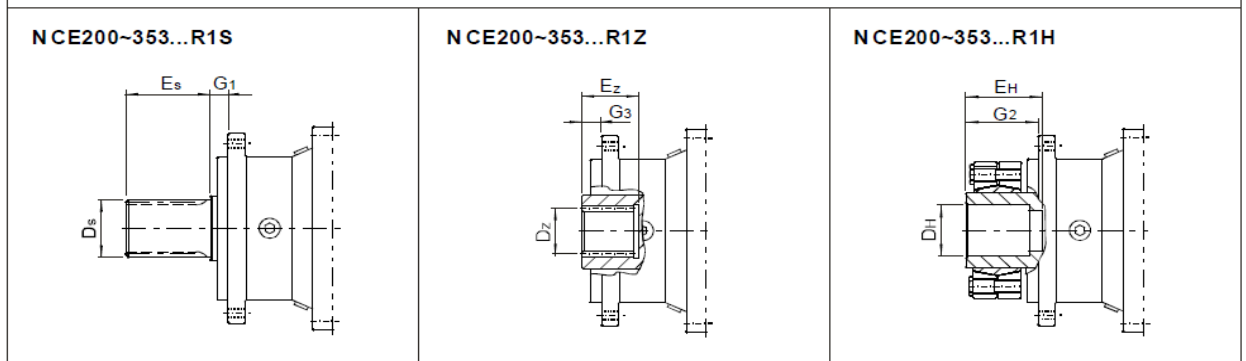
1 bevel gear pair and 1 planetary gear

right angle transmission

size 200~353



Other shaft ends



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

bevel-planetary gear reducer

1 bevel gear pair and 1 planetary gear

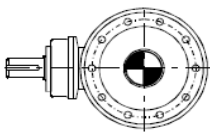
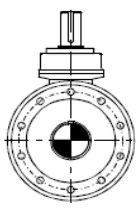
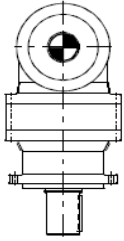
right angle transmission

size 200~353

size	X ₁ ∅	L ₁	C	d ∅	E	D _c ∅	E _c	D _s	E _s	D _H ∅	E _H	D _z
200	200	65	172	32	58	42	82	EXT 24zx2mx30	55	50	72	INT 24zx2mx30
201	200	77	172	32	58	50	82	EXT 24zx2mx30	55	50	72	INT 24zx2mx30
240	240	63	172	32	58	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
241	240	56	248	48	82	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
280	280	82	248	48	82	80	130	EXT 34zx2mx30	90	85	145	INT 34zx2mx30
353	353	92	248	48	82	90	130	EXT 40zx2mx30	90	100	140	INT 40zx2mx30

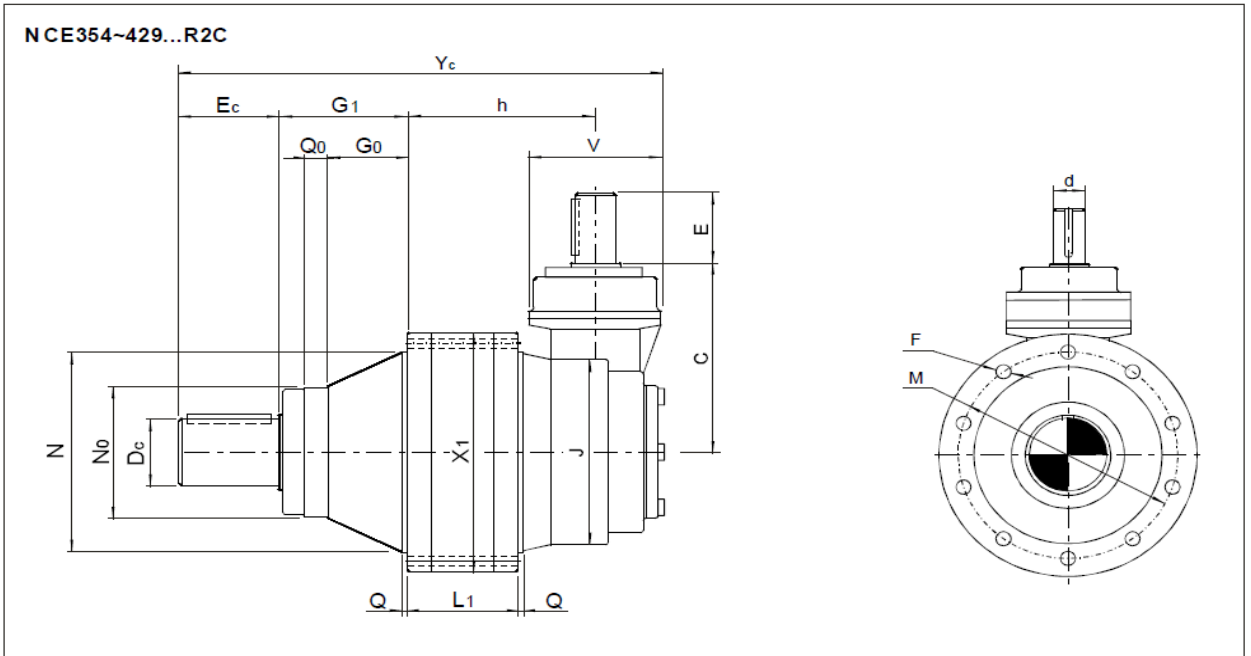
size	E _z	G ₁	G ₂	G ₃	L ₀	M ∅	N ∅f7	Q	P ∅	S	J ∅	h	V ∅	Y _c	weight
200	42.5	6	50	6	62.5	165	110	5	185	12	200	181.5	130	347	41
201	42.5	6	56	6	62.5	165	110	5	185	12	200	193.5	130	359	44
240	54	15	85	15	89	195	150	14	220	18	200	221.5	130	419	60
241	54	15	85	15	89	195	150	14	220	18	270	251.5	195	477	110
280	82	40	115	40	142	250	200	15	280	22	270	314	195	589	136
353	85	36	120	36	124	295	230	10	325	25	270	304.5	195	568	182

Mounting positions and oil quantity(L)

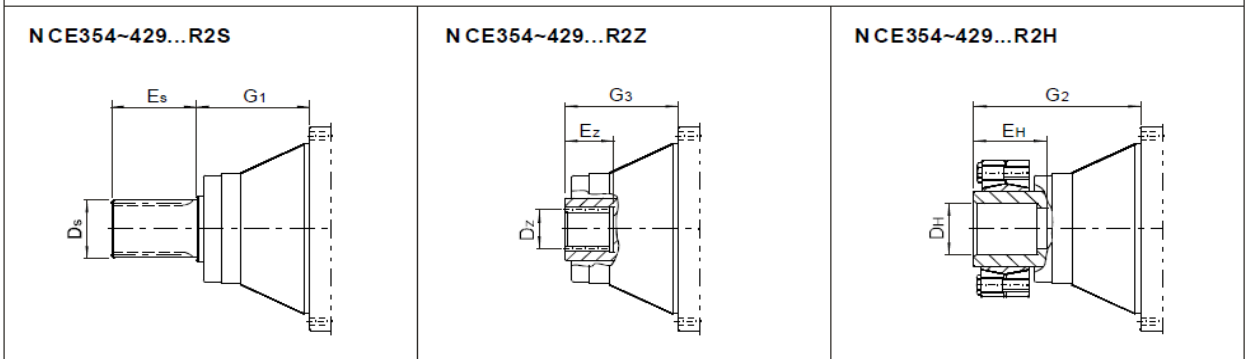
B5	B51	V1	size	oil quantity(L)			
				B5,B53	B51	B52	V1,V3
			200	1	1.6	1	1.8
			201	1.2	1.9	1.2	2.1
			240	1.5	2.3	1.5	2.7
			241	2.6	4.3	2.6	4.8
			280	3.3	5.3	3.3	6
			353	4.3	6.7	4.3	7.8

Mounting dimensions

bevel-planetary gear reducer
 1 bevel gear pair and 1 planetary gear
 right angle transmission
 size 354~429



Other shaft ends



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

bevel-planetary gear reducer

1 bevel gear pair and 1 planetary gear

right angle transmission

size 354-429

size	X ₁ ∅	L ₁	C	d ∅	E	D _c ∅	E _c	D _s	E _s	D _H ∅	E _H	D _z
354	353	138	248	48	82	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
355	353	139	330	65	105	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
428	428	162	330	65	105	110	165	EXT 39zx3mx30	130	130	180	INT 39zx3mx30
429	428	184	330	65	105	120	165	EXT 39zx3mx30	130	130	180	INT 39zx3mx30

size	E _z	G ₀	G ₁	G ₂	G ₃	h	J ∅	M ∅	N ∅f7	N ₀ ∅f7	Q	Q ₀	V ∅	Y _c	weight
354	75	72	141	235	141	221.5	270	314	278	225	8.5	25	195	598	198
355	75	72	141	235	141	297	376	314	278	225	8.5	25	250	713	289
428	107	135	210	320	210	310	376	390	358	230	10	40	250	820	353
429	107	135	210	320	210	332	376	390	358	230	10	40	250	852	353

Mounting positions and oil quantity(L)

B5	B51	V1	size	B5,B53	B51	B52	V1,V3
			354	5.3	8.1	5.3	9.5
B53 <td rowspan="2">B52 <td rowspan="2">V3 <td>355</td> <td>7.6</td> <td>12.8</td> <td>7.6</td> <td>14.2</td> </td></td>	B52 <td rowspan="2">V3 <td>355</td> <td>7.6</td> <td>12.8</td> <td>7.6</td> <td>14.2</td> </td>	V3 <td>355</td> <td>7.6</td> <td>12.8</td> <td>7.6</td> <td>14.2</td>	355	7.6	12.8	7.6	14.2
			428	8.6	14.2	8.6	16
			429	8.6	14.2	8.6	16

Mounting dimensions

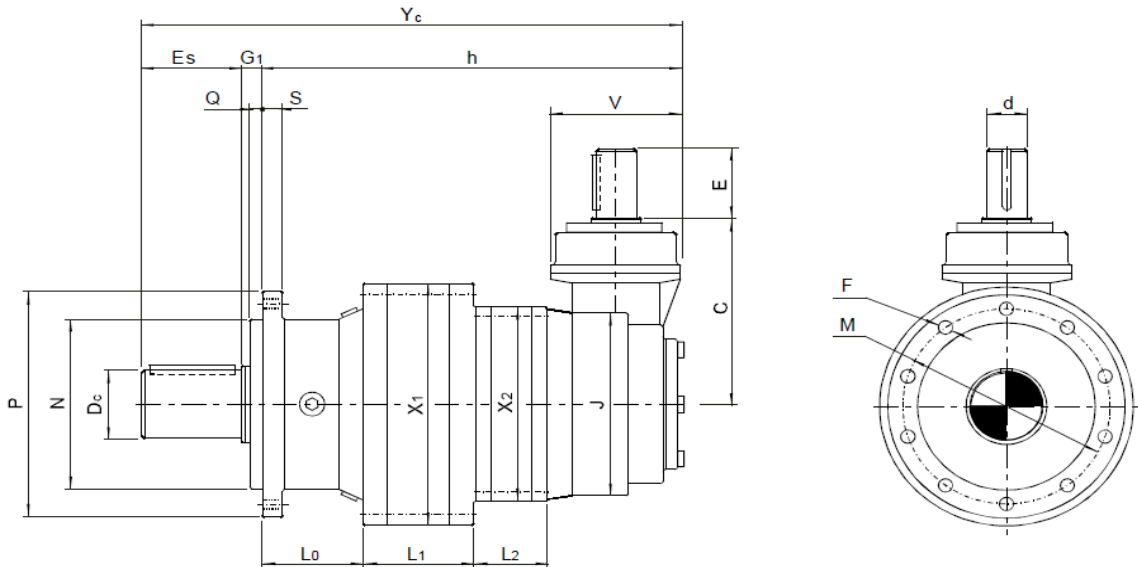
bevel-planetary gear reducer

1 bevel gear pair and 2 planetary gear

right angle transmission

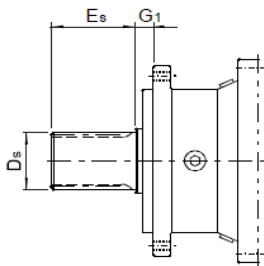
size 200~353

NC2E200~353...R1C

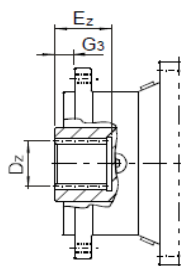


Other shaft ends

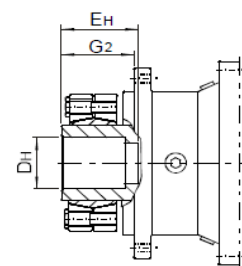
NC2E200~353...R1S



NC2E200~353...R1Z



NC2E200~353...R1H



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

bevel-planetary gear reducer

1 bevel gear pair and 2 planetary gear

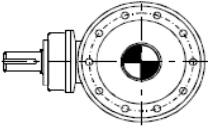
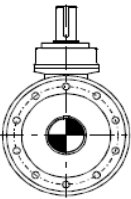
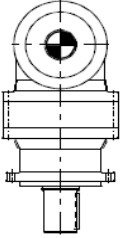
right angle transmission

size 200~353

size	X ₁ ∅	L ₁	X ₂ ∅	L ₂	C	d ∅	E	D _c ∅	E _c	D _s	E _s	D _H ∅	E _H	D _z
200	200	49	200	66	172	32	58	42	82	EXT 24zx2mx30	55	50	72	INT 24zx2mx30
201	200	61	200	66	172	32	58	50	82	EXT 24zx2mx30	55	50	72	INT 24zx2mx30
240	240	63	200	66	172	32	58	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
241	240	78	200	78	172	32	58	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
280	280	82	240	62	172	32	58	80	130	EXT 34zx2mx30	90	85	145	INT 34zx2mx30
353	353	92	240	67	172	32	58	90	130	EXT 40zx2mx30	90	100	140	INT 40zx2mx30

size	E _z	G ₁	G ₂	G ₃	L ₀	M ∅	N ∅f7	Q	P ∅	S	J ∅	h	V ∅	Y _c	weight
200	42.5	6	50	6	62.5	165	110	5	185	12	200	231.5	130	397	48
201	42.5	6	56	6	62.5	165	110	5	185	12	200	243.5	130	409	51
240	54	15	85	15	89	195	150	14	220	18	200	271.5	130	469	68
241	54	15	85	15	89	195	150	14	220	18	200	298.5	130	496	76
280	82	40	115	40	142	250	200	15	280	22	200	355.5	130	603	105
353	85	36	120	36	124	295	230	10	325	25	200	353	130	597	157

Mounting positions and oil quantity(L)

B5	B51	V1	size	oil quantity(L)			
				B5,B53	B51	B52	V1,V3
			200	1.4	2.3	1.4	2.5
			201	1.6	2.6	1.6	2.8
			240	1.9	3	1.9	3.4
			241	2.4	3.8	2.4	4.2
			280	3.3	5.1	3.3	5.8
			353	4.6	7	4.6	8.1

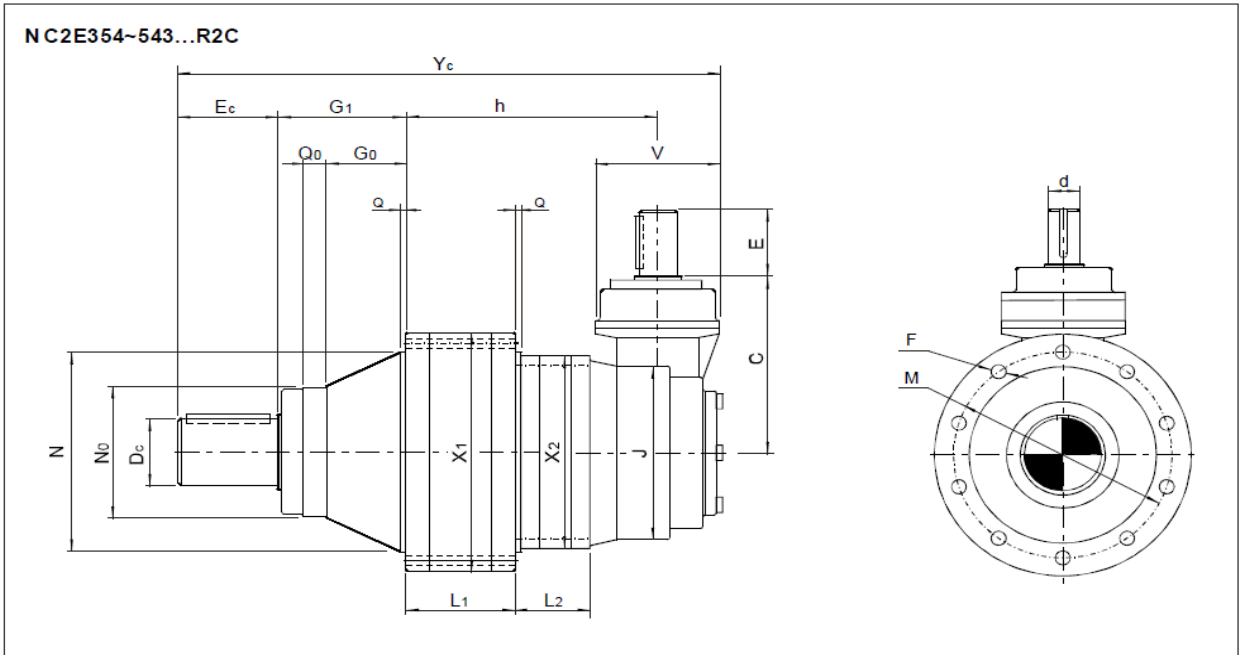
Mounting dimensions

bevel-planetary gear reducer

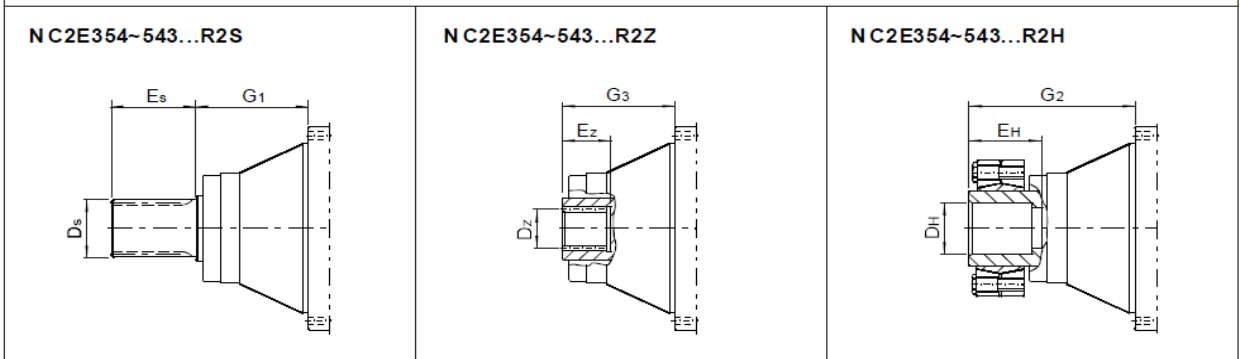
1 bevel gear pair and 2 planetary gear

right angle transmission

size 354~543



Other shaft ends



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

bevel-planetary gear reducer

1 bevel gear pair and 2 planetary gear

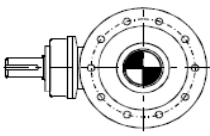
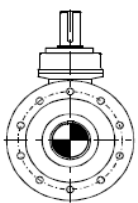
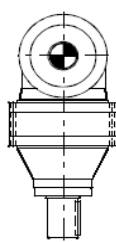
right angle transmission

size 354~543

size	X ₁ ∅	L ₁	X ₂ ∅	L ₂	C	d ∅	E	D _c ∅	E _c	D _s	E _s	D _H ∅	E _H	D _z
354	353	138	240	48	248	48	82	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
355	353	139	280	101	248	48	82	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
428	428	140	280	110	248	48	82	110	165	EXT 39zx3mx30	130	130	180	INT 39zx3mx30
429	428	184	353	82	248	48	82	120	165	EXT 39zx3mx30	130	130	180	INT 39zx3mx30
445	445	175	353	128	248	48	82	130	170	EXT 42zx3mx30	130	140	205	INT 42zx3mx30
446	445	175	353	128	330	65	105	140	170	EXT 42zx3mx30	130	140	205	INT 42zx3mx30
542	542	199	428	159	330	65	105	160	210	EXT 30zx5mx30	170	170	250	INT 32zx5mx30
543	542	219	428	181	330	65	105	170	210	EXT 30zx5mx30	170	170	250	INT 32zx5mx30

size	E _z	G ₀	G ₁	G ₂	G ₃	h	J ∅	M ∅	N ∅f7	N ₀ ∅f7	Q	Q ₀	V ∅	Y _c	weight
354	75	72	141	235	141	293	270	314	278	225	8.5	25	195	669	217
355	75	72	141	235	141	329.5	270	314	278	225	8.5	25	195	706	230
428	107	135	210	320	210	340	270	390	358	230	10	40	195	820	294
429	107	135	210	320	210	354	270	390	358	230	10	40	195	834	311
445	110	152	227	362	227	386	270	415	385	260	13	40	195	888	401
446	110	152	227	362	227	462	376	415	385	260	13	40	250	1004	492
542	120	224	279	427	279	506	376	503	460	300	13	32	250	1140	707
543	120	224	279	437	279	548	376	503	460	300	13	32	250	1182	781

Mounting positions and oil quantity(L)

B5	B51	V1	size	B5,B53	B51	B52	V1,V3
						354	6.4
			355	6.9	10.9	6.9	12.3
			428	7.9	12.3	7.9	14.1
			429	8.7	13.7	8.7	15.5
			445	12	18.6	12	21
			446	14.3	23	14.3	26
			542	17.6	28	17.6	32
			543	21	33	21	37

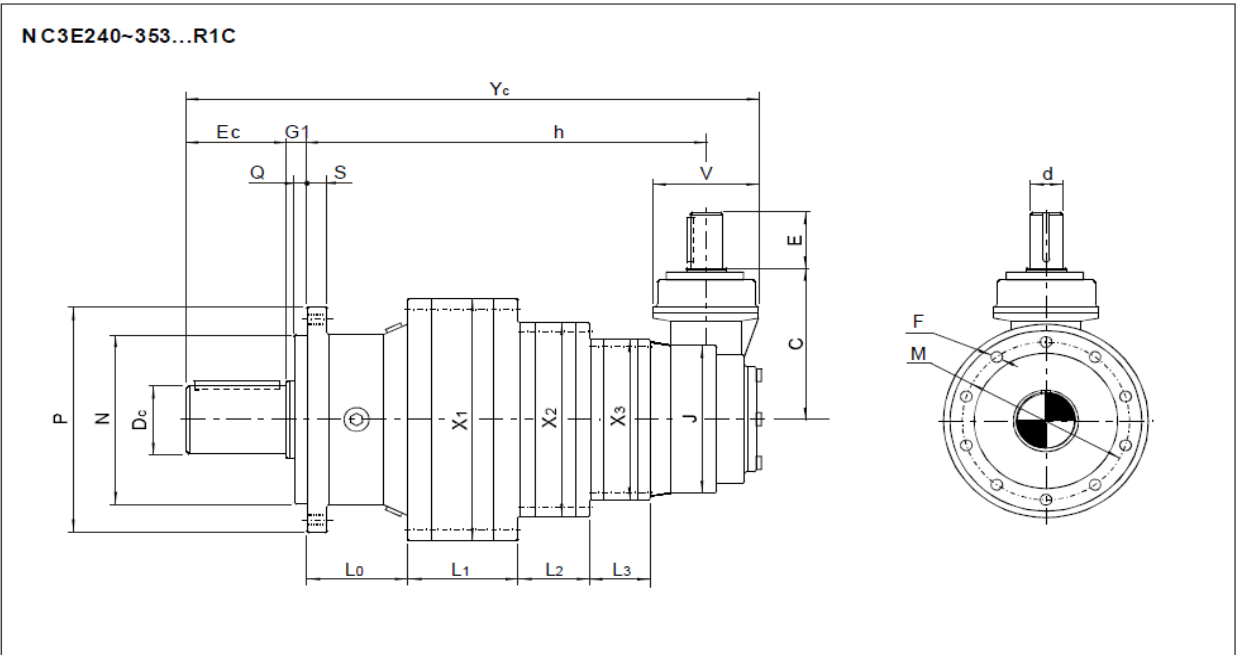
Mounting dimensions

bevel-planetary gear reducer

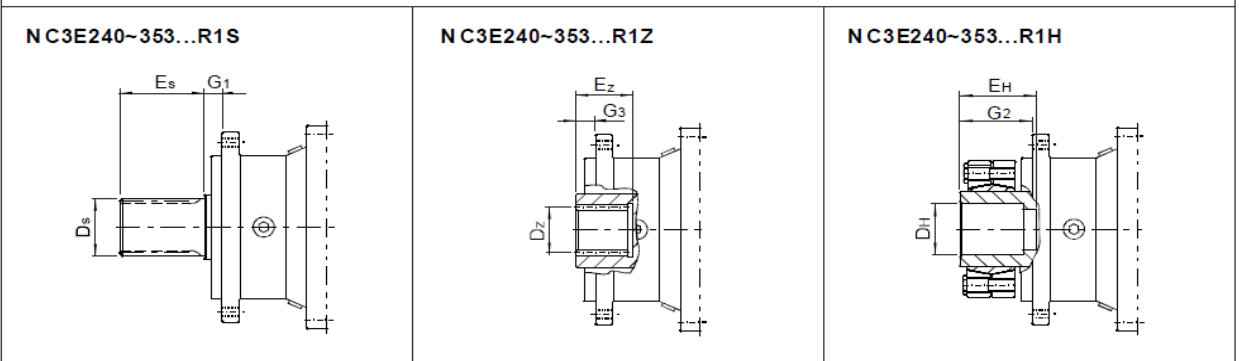
1 bevel gear pair and 3 planetary gear

right angle transmission

size 240~353



Other shaft ends



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

bevel-planetary gear reducer

1 bevel gear pair and 3 planetary gear

right angle transmission

size 240~353

size	X ₁ ∅	L ₁	X ₂ ∅	L ₂	X ₃ ∅	L ₃	D _C ∅	E _C	D _S	E _S	D _H ∅	E _H	D _Z
240	240	63	200	50	200	66	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
241	240	78	200	62	200	66	65	105	EXT 28zx2mx30	68	75	100	INT 28zx2mx30
280	280	82	240	62	200	66	80	130	EXT 34zx2mx30	90	85	145	INT 34zx2mx30
353	353	92	240	67	200	78	90	130	EXT 40zx2mx30	90	100	140	INT 40zx2mx30

size	C	d ∅	E	E _Z	G ₁	G ₂	G ₃	L ₀	M ∅	N ∅f7	Q	P ∅	S	J ∅	h	weight
240	172	32	58	54	15	85	15	89	195	150	14	220	18	200	321.5	75
241	172	32	58	54	15	85	15	89	195	150	14	220	18	200	348.5	83
280	172	32	58	82	40	115	40	142	250	200	15	280	22	200	405.5	112
353	172	32	58	85	36	120	36	124	295	230	10	325	25	200	415	167

Mounting positions and oil quantity(L)

B5			B51			V1			size	B5,B53	B51	B52	V1,V3
									240	2.3	3.7	2.3	4.1
									241	2.8	4.9	2.8	4.9
									280	3.7	6.5	3.7	6.5
									353	5.2	8.1	5.2	9.1

Mounting dimensions

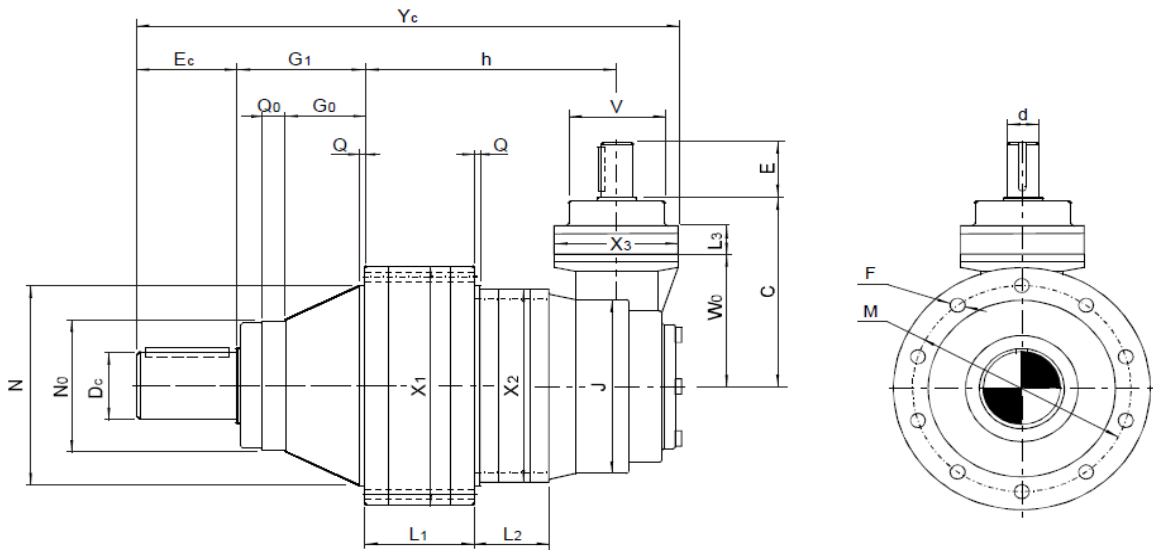
bevel-planetary gear reducer

1 bevel gear pair and 3 planetary gear

right angle transmission

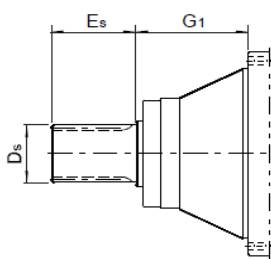
size 354~429

NC3E354~429...R2C

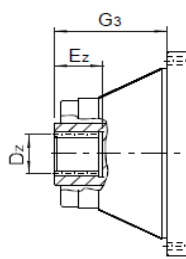


Other shaft ends

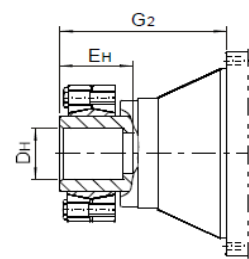
NC3E354~429...R2S



NC3E354~429...R2Z



NC3E354~429...R2H



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

bevel-planetary gear reducer

1 bevel gear pair and 3 planetary gear

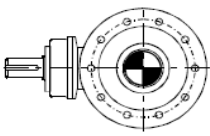
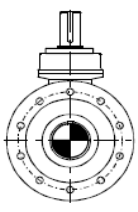
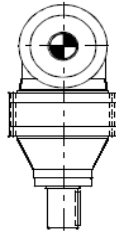
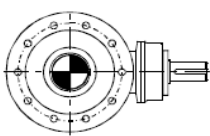
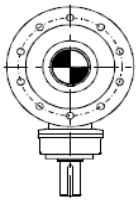
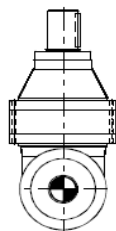
right angle transmission

size 354~429

size	X ₁ Ø	L ₁	X ₂ Ø	L ₂	X ₃ Ø	L ₃	C	d Ø	E	D _c Ø	E _c	D _s	E _s	D _H Ø	E _H	D _z
354	353	138	240	48	200	48	327	40	58	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
355	353	139	280	101	200	48	358	40	58	100	130	EXT 29zx3mx30	90	110	160	INT 29zx3mx30
428	428	140	280	110	200	48	358	40	58	110	165	EXT 39zx3mx30	130	130	180	INT 39zx3mx30
429	428	184	353	82	200	60	370	40	58	120	165	EXT 39zx3mx30	130	130	180	INT 39zx3mx30

size	W ₀	E _z	G ₀	G ₁	G ₂	G ₃	h	J Ø	M Ø	N Øf7	N ₀ Øf7	Q	Q ₀	V Ø	Y _c	weight
354	225	75	72	141	235	141	293	270	314	278	225	8.5	25	124	669	210
355	225	75	72	141	235	141	329.5	270	314	278	225	8.5	25	124	706	223
428	225	107	135	210	320	210	340	270	390	358	230	10	40	124	820	288
429	225	107	135	210	320	210	354	270	390	358	230	10	40	124	834	308

Mounting positions and oil quantities(L)

B5	B51	V1	size	B5,B53	B51	B52	V1,V3
						354 355 428 429	6.8 7.3 8.3 9.3
B53	B52	V3					
							

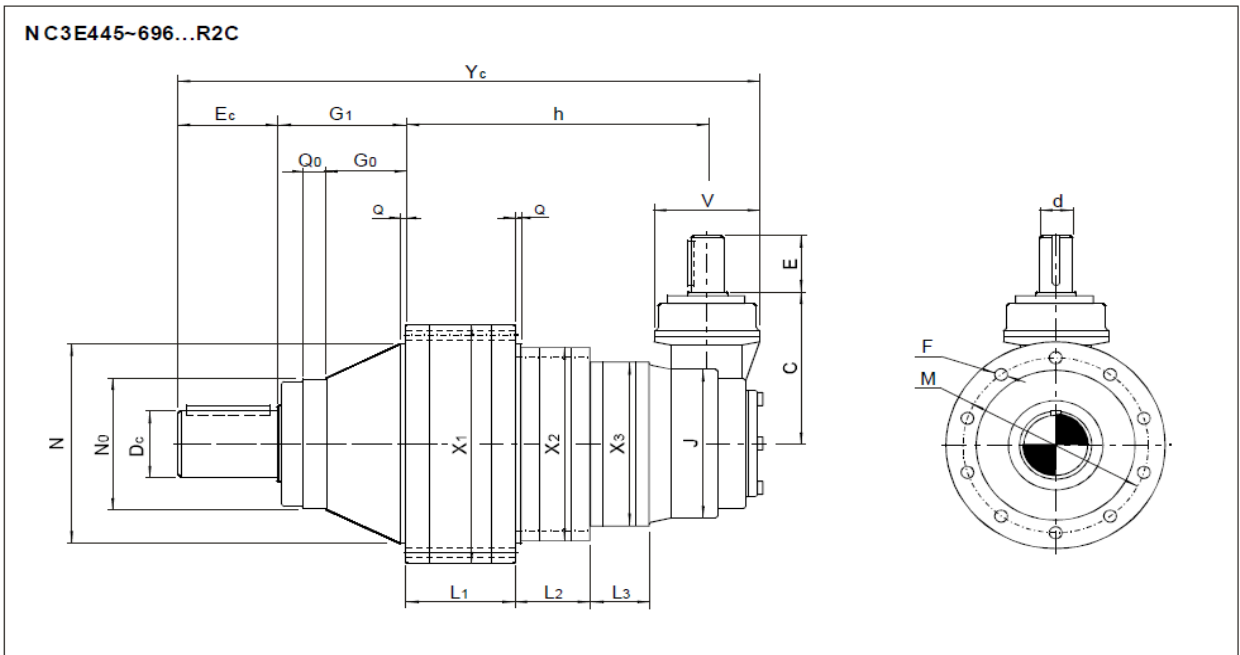
Mounting dimensions

bevel-planetary gear reducer

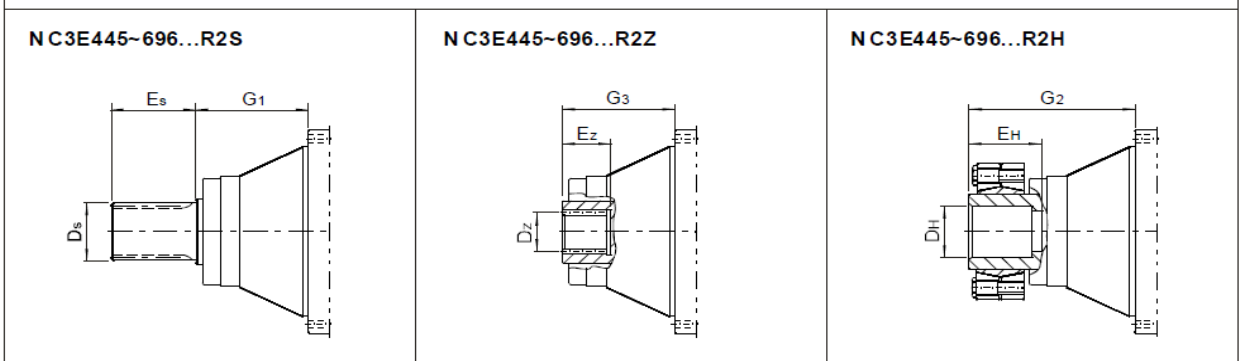
1 bevel gear pair and 3 planetary gear

right angle transmission

size 445~696



Other shaft ends



- 1) for input side details, see page 152;
- 2) for splined shaft details, see page 152;
- 3) for splined hollow shaft details, see page 153;
- 4) for hollow shaft with shrink disk details, see page 153;
- 5) for output flange details, see page 151;
- 6) can add foot on output flange, the details on page 154.

Mounting dimensions

bevel-planetary gear reducer

1 bevel gear pair and 3 planetary gear

right angle transmission

size 445~696

size	X ₁ ∅	L ₁	X ₂ ∅	L ₂	X ₃ ∅	L ₃	C	d ∅	E	D _c ∅	E _c	D _s	E _s	D _H ∅	E _H	D _z
445	445	175	353	128	240	48	248	48	82	130	170	EXT 42z×3mx30	130	140	205	INT 42z×3mx30
446	445	175	353	128	280	101	248	48	82	140	170	EXT 42z×3mx30	130	140	205	INT 42z×3mx30
542	542	199	428	137	280	110	248	48	82	160	210	EXT 30z×5mx30	170	170	250	INT 30z×5mx30
543	542	219	428	181	353	82	248	48	82	170	210	EXT 30z×5mx30	170	170	250	INT 30z×5mx30
695	695	200	445	237	353	129	330	65	105	190	260	EXT 36z×5mx30	200	190	292	INT 36z×5mx30
696	695	230	445	237	353	129	330	65	105	200	260	EXT 36z×5mx30	200	200	307	INT 36z×5mx30

size	E _z	G ₀	G ₁	G ₂	G ₃	h	J ∅	M ∅	N ∅f7	N ₀ ∅f7	Q	Q ₀	V ∅	Y _c	weight
445	110	152	227	362	227	458	270	415	385	260	13	40	195	960	420
446	110	152	227	362	227	494.5	270	415	385	260	13	40	195	997	433
542	120	224	279	427	279	536	270	503	460	300	13	32	195	1130	648
543	120	224	279	437	279	570	270	503	460	300	13	32	195	1164	739
695	140	–	152	318	152	724	376	635	560	–	20	–	250	1281	1275
696	140	–	152	318	152	754	376	635	560	–	20	–	250	1311	1363

Mounting positions and oil quantity(L)

B5	B51	V1	size	B5,B53	B51	B52	V1,V3
						445	13.1
			446	13.6	21	13.6	24
			542	16.9	26	16.9	30
			543	21	33	21	37
			695	29	46	29	51
			696	33	51	33	58
B53	B52	V3					

Radial loads F_{r1} on high speed shaft end

Radial loads generated on the shaft end by a drive connecting gear reducer and motor must be less than or equal to those given in the relevant table.

The radial load F_{r1} given by the following formula refers to most common drives:

$$F_{r1} = \frac{28650 \cdot P_1}{d \cdot n_1} \quad [\text{N}] \quad \text{for timing belt drive}$$

$$F_{r1} = \frac{47750 \cdot P_1}{d \cdot n_1} \quad [\text{N}] \quad \text{for timing V-belt drive}$$

P_1 (KW)-----power required at the input side of the gear reducer

n_1 (rpm)-----input speed

d (m) -----pitch diameter

input speed n_1 (rpm)	size													
	200	201	200 201	241	240	240 241	240 241	280	353	280 353				
	1E	1E	2E 3E CE C2E	CE	CE	1E	2E	3E 4E C2E C3E	1E	1E	2E	CE	3E	4E C2E C3E
1400	2120	5100	2120	4250	2120	8500	5100	2120	10600	21200	8500	4250	5100	2120
1120	2240	4000	2240	4500	2240	9000	4000	2240	11200	22400	9000	4500	4000	2240
900	2360	4250	2360	4750	2360	9500	4250	2360	11800	23600	9500	4750	4250	2360
710	2650	4750	2650	5300	2650	10600	4750	2650	13200	26500	10600	5300	4750	2650
560	2800	5000	2800	5600	2800	11200	5000	2800	14000	28000	11200	5600	5000	2800
450	3000	5300	3000	6000	3000	11800	5300	3000	15000	30000	11800	6000	5300	3000
355	3350	6000	3350	6700	3350	13200	6000	3350	17000	33500	13200	6700	6000	3350

input speed n_1 (rpm)	size													
	354				355	428 429	355,428,429				445,446			
	2E	CE C2E	3E	4E C3E	2E	2E	3E CE	C2E	4E C3E	2E	3E	4E C2E	C2E C3E	
1400	10600	4250	5100	2120	10600	13200	8500	4250	5100	21200	10600	8500	4250	
1120	11200	4500	4000	2240	11200	14000	9000	4500	4000	22400	11200	9000	4500	
900	11800	4750	4250	2360	11800	15000	9500	4750	4250	23600	11800	9500	4750	
710	13200	5300	4750	2650	13200	17000	10600	5300	4750	26500	13200	10600	5300	
560	14000	5600	5000	2800	14000	18000	11200	5600	5000	28000	14000	11200	5600	
450	15000	6000	5300	3000	15000	19000	11800	6000	5300	30000	15000	11800	6000	
355	17000	6700	6000	3350	17000	21200	13200	6700	6000	33500	17000	13200	6700	

Radial loads F_{r1} on high speed shaft end

input speed n_1 (rpm)	size									
	445	543	542	542,543			695,696			
	4E	2E	2E	3E	4E C2E	C3E	2E	3E	4E	C3E
1400	5100	26500	21200	13200	8500	4250	26500	21200	10600	8500
1120	4000	28000	22400	14000	9000	4500	28000	22400	11200	9000
900	4250	30000	23600	15000	9500	4750	30000	23600	11800	9500
710	4750	33500	26500	17000	10600	5300	33500	26500	13200	10600
560	5000	35500	28000	18000	11200	5600	35500	28000	14000	11200
450	5300	51000	30000	19000	11800	6000	51000	30000	15000	11800
355	6000	42500	33500	21200	13200	6700	42500	33500	17000	13200

ATTENTION!

Radial loads given in the table are valid for overhung loads on centre line of high speed shaft end.

an axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial loads.

the value expressed in unit: N

Radial loads F_{r2} on low speed shaft end

Radial loads generated on the shaft end must be less than or equal which given in the relevant table;

Bearing life and wear and low speed shaft strength, clearly impose limits on permissible radial load.

The high value which radial load may take on but not exceeding permissible values.

Radial load F_{r2} for most common drives has the following value:

$$F_{r2} = \frac{19100 \cdot P_2}{d \cdot n_2} \quad [N] \quad \text{For chain drive}$$

$$F_{r2} = \frac{47750 \cdot P_2}{d \cdot n_2} \quad [N] \quad \text{For V-belt drive}$$

$$F_{r2} = \frac{20320 \cdot P_2}{d \cdot n_2} \quad [N] \quad \text{For spur gear pair drive}$$

$$F_{r2} = \frac{67810 \cdot P_2}{d \cdot n_2} \quad [N] \quad \text{For friction wheel drive (rubber-on-metal)}$$

P_2 (KW)-----power required at the output side of the gear reducer

n_2 (KW)-----output speed

d (m) -----pitch diameter

Radial loads F_{r2} on high speed shaft end

Size 200

n ₂ -Lh h-rpm	...1C					...1S				
	0	20.5	41	61.5	82	0	14	27.5	41.5	55
28000	50000	26500	26500	22400	18000	50000	51000	31500	26500	23600
35500	47500	25000	25000	20000	17000	47500	35500	30000	25000	21200
45000	42500	23600	23600	19000	16000	42500	33500	28000	23600	20000
56000	40000	21200	21200	18000	15000	40000	31500	26500	21200	19000
71000	51000	20000	20000	17000	14000	51000	30000	23600	20000	18000
90000	35500	19000	19000	15000	13200	35500	26500	22400	19000	16000
112000	33500	18000	18000	14000	11800	33500	25000	21200	18000	15000
140000	30000	17000	17000	13200	11200	30000	23600	20000	17000	14000
180000	28000	15000	15000	12500	10600	28000	22400	18000	15000	13200
224000	26500	14000	14000	11800	10000	26500	21200	17000	14000	12500
280000	25000	13200	13200	11200	9500	25000	19000	16000	13200	11800
355000	23600	12500	12500	10000	8500	23600	18000	15000	12500	10600
450000	21200	11800	11800	9500	8000	21200	17000	14000	11800	10000
560000	20000	11200	11200	9000	7500	20000	16000	13200	11200	9500
710000	19000	10000	10000	8500	7100	19000	15000	11800	10000	8500
900000	17000	9500	9500	7500	6700	17000	14000	11200	9500	8000
1120000	16000	9000	9000	7100	6000	16000	12500	10600	9000	7500
1400000	15000	8500	8500	6700	5600	15000	11800	10000	8500	7100
1800000	14000	7500	7500	6300	5300	14000	11200	9000	7500	6700
2240000	13200	7100	7100	6000	5000	13200	10600	8500	7100	6300
2800000	12500	6700	6700	5600	4750	12500	9500	8000	6700	6000
F_{r2max}	25000	19000	15000	12500	10600	25000	21200	18000	15000	13200

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load.

With splined hollow low speed shaft (... 1Z) the radial load F_r at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$.

The value expressed in unit: N

The product of speed n rpm multiplied by bearing life L [h] required;

Radial loads F_{r2} on high speed shaft end

Size 201

n ₂ -Lh	...1C					...1S				
	0	20.5	41	61.5	82	0	14	27.5	41.5	55
h-rpm										
28000	50000	35500	26500	22400	18000	50000	51000	31500	26500	23600
35500	47500	33500	25000	20000	17000	47500	35500	30000	25000	21200
45000	42500	30000	23600	19000	16000	42500	33500	28000	23600	20000
56000	40000	28000	21200	18000	15000	40000	31500	26500	21200	19000
71000	51000	26500	20000	17000	14000	51000	30000	23600	20000	18000
90000	35500	25000	19000	15000	13200	35500	26500	22400	19000	16000
112000	33500	23600	18000	14000	11800	33500	25000	21200	18000	15000
140000	30000	21200	17000	13200	11200	30000	23600	20000	17000	14000
180000	28000	20000	15000	12500	10600	28000	22400	18000	15000	13200
224000	26500	19000	14000	11800	10000	26500	21200	17000	14000	12500
280000	25000	18000	13200	11200	9500	25000	19000	16000	13200	11800
355000	23600	16000	12500	10000	8500	23600	18000	15000	12500	10600
450000	21200	15000	11800	9500	8000	21200	17000	14000	11800	10000
560000	20000	14000	11200	9000	7500	20000	16000	13200	11200	9500
710000	19000	13200	10000	8500	7100	19000	15000	11800	10000	8500
900000	17000	12500	9500	7500	6700	17000	14000	11200	9500	8000
1120000	16000	11800	9000	7100	6000	16000	12500	10600	9000	7500
1400000	15000	10600	8500	6700	5600	15000	11800	10000	8500	7100
1800000	14000	10000	7500	6300	5300	14000	11200	9000	7500	6700
2240000	13200	9500	7100	6000	5000	13200	10600	8500	7100	6300
2800000	12500	9000	6700	5600	4750	12500	9500	8000	6700	6000
F_{r2max}	31500	23600	19000	16000	13200	31500	26500	22400	19000	17000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load.

With splined hollow low speed shaft (... 1Z) the radial load \bar{F} at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $E_C/2$.

The value expressed in unit: N

The product of speed n rpm multiplied by bearing life L [h] required;

Radial loads F_{r2} on high speed shaft end

Size 240,241

n2-Lh	...1C					...1S				
	0	26.3	52.5	78.8	105	0	17	34	51	68
h-rpm										
28000	80000	60000	47500	40000	33500	80000	67000	56000	47500	42500
35500	75000	56000	45000	35500	31500	75000	60000	53000	45000	40000
45000	67000	53000	40000	33500	28000	67000	56000	47500	42500	35500
56000	63000	47500	51000	31500	26500	63000	53000	45000	40000	33500
71000	60000	45000	35500	30000	25000	60000	50000	42500	35500	31500
90000	56000	42500	33500	28000	23600	56000	47500	40000	33500	30000
112000	53000	40000	31500	26500	22400	53000	42500	51000	31500	28000
140000	50000	51000	30000	23600	20000	50000	40000	33500	30000	26500
180000	45000	33500	26500	22400	19000	45000	51000	31500	28000	23600
224000	42500	31500	25000	21200	18000	42500	35500	30000	25000	22400
280000	40000	30000	23600	20000	17000	40000	33500	28000	23600	21200
355000	51000	28000	22400	18000	16000	51000	31500	26500	22400	20000
450000	33500	26500	20000	17000	14000	33500	28000	23600	21200	18000
560000	31500	25000	19000	16000	13200	31500	26500	22400	19000	17000
710000	30000	22400	18000	15000	12500	30000	25000	21200	18000	16000
900000	28000	21200	17000	14000	11800	28000	23600	20000	17000	15000
1120000	26500	20000	16000	13200	11200	26500	21200	18000	16000	14000
1400000	25000	18000	15000	11800	10000	25000	20000	17000	15000	13200
1800000	22400	17000	13200	11200	9500	22400	19000	16000	14000	11800
2240000	21200	16000	12500	10600	9000	21200	18000	15000	13200	11200
2800000	20000	15000	11800	10000	8500	20000	17000	14000	11800	10600
F_{r2max}	47500	51000	30000	25000	21200	47500	41250	35500	30000	26500

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load.

With splined hollow low speed shaft (... 1Z) the radial load \bar{F}_r at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$.

The value expressed in unit: N

The product of speed n rpm multiplied by bearing life L [h] required;

Radial loads F_{r2} on high speed shaft end

Size 280

n ₂ -Lh h-rpm	...1C					...1S				
	0	32.5	65	97.5	130	0	22.5	45	67.5	90
28000	95000	80000	67000	60000	53000	95000	85000	75000	67000	60000
35500	85000	75000	63000	56000	50000	85000	75000	67000	63000	56000
45000	80000	67000	60000	53000	47500	80000	71000	63000	60000	53000
56000	75000	63000	56000	47500	42500	75000	67000	60000	56000	50000
71000	71000	60000	50000	45000	40000	71000	63000	56000	50000	47500
90000	67000	56000	47500	42500	51000	67000	60000	53000	47500	42500
112000	63000	53000	45000	40000	35500	63000	53000	50000	45000	40000
140000	56000	47500	42500	51000	33500	56000	50000	45000	42500	51000
180000	53000	45000	40000	33500	30000	53000	47500	42500	51000	35500
224000	50000	42500	35500	31500	28000	50000	45000	40000	35500	33500
280000	47500	40000	33500	30000	26500	47500	42500	51000	33500	31500
355000	42500	51000	31500	28000	25000	42500	51000	35500	31500	28000
450000	40000	33500	30000	26500	23600	40000	35500	31500	30000	26500
560000	51000	31500	28000	25000	21200	51000	33500	30000	28000	25000
710000	35500	30000	26500	22400	20000	35500	31500	28000	25000	23600
900000	33500	28000	23600	21200	19000	33500	30000	26500	23600	21200
1120000	31500	26500	22400	20000	18000	31500	28000	25000	22400	20000
1400000	28000	23600	21200	18000	16000	28000	25000	22400	21200	19000
1800000	26500	22400	19000	17000	15000	26500	23600	21200	19000	18000
2240000	25000	21200	18000	16000	14000	25000	22400	20000	18000	16000
2800000	23600	20000	17000	15000	13200	23600	21200	19000	17000	15000
F_{r2max}	67000	56000	47500	40000	33500	67000	60000	53000	47500	42500

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load.

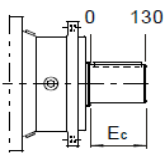
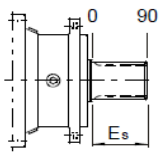
With splined hollow low speed shaft (... 1Z) the radial load \bar{F} at a permissible value of EZ/2 is equal to 0.2 times the value in the table referring to EC/2.

The value expressed in unit: N

The product of speed n_2 rpm multiplied by bearing life t [h] required;

Radial loads F_{r2} on high speed shaft end

Size 353

n ₂ -Lh	...1C					...1S				
	0	32.5	65	97.5	130	0	22.5	45	67.5	90
h-rpm										
28000	118000	100000	85000	75000	63000	118000	106000	95000	85000	75000
35500	112000	95000	80000	67000	60000	112000	100000	85000	80000	71000
45000	106000	85000	75000	63000	56000	106000	90000	80000	71000	67000
56000	100000	80000	67000	60000	53000	100000	85000	75000	67000	63000
71000	90000	75000	63000	56000	47500	90000	80000	71000	63000	56000
90000	85000	71000	60000	53000	45000	85000	75000	67000	60000	53000
112000	80000	67000	56000	47500	42500	80000	71000	63000	56000	50000
140000	75000	60000	53000	45000	40000	75000	63000	56000	53000	47500
180000	71000	56000	47500	42500	35500	71000	60000	53000	47500	42500
224000	63000	53000	45000	40000	33500	63000	56000	50000	45000	40000
280000	60000	50000	42500	51000	31500	60000	53000	47500	42500	51000
355000	56000	47500	40000	33500	30000	56000	50000	42500	40000	35500
450000	53000	42500	51000	31500	28000	53000	45000	40000	35500	33500
560000	50000	40000	33500	30000	26500	50000	42500	51000	33500	31500
710000	45000	51000	31500	28000	23600	45000	40000	35500	31500	28000
900000	42500	35500	30000	26500	22400	42500	51000	33500	30000	26500
1120000	40000	33500	28000	25000	21200	40000	35500	31500	28000	25000
1400000	51000	31500	26500	22400	20000	51000	33500	28000	26500	23600
1800000	35500	28000	25000	21200	18000	35500	30000	26500	23600	21200
2240000	31500	26500	22400	20000	17000	31500	28000	25000	22400	20000
2800000	30000	25000	21200	19000	16000	30000	26500	23600	21200	19000
F_{r2max}	85000	71000	60000	50000	42500	85000	75000	67000	60000	53000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load.

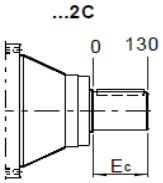
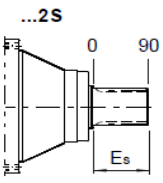
With splined hollow low speed shaft (... 1Z) the radial load F_r at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$.

The value expressed in unit: N

The product of speed n_2 rpm multiplied by bearing life L [h] required;

Radial loads F_{r2} on high speed shaft end

Size 354,355

n2-Lh	 ...2C					 ...2S				
	h-rpm	0	32.5	65	97.5	130	0	22.5	45	67.5
28000	140000	118000	100000	85000	71000	140000	125000	112000	100000	90000
35500	132000	112000	95000	80000	67000	132000	118000	100000	90000	85000
45000	125000	100000	85000	75000	60000	125000	106000	95000	85000	80000
56000	118000	95000	80000	71000	56000	118000	100000	90000	80000	75000
71000	106000	90000	75000	67000	53000	106000	95000	85000	75000	67000
90000	100000	85000	71000	60000	50000	100000	90000	80000	71000	63000
112000	95000	80000	67000	56000	47500	95000	80000	71000	67000	60000
140000	90000	71000	63000	53000	42500	90000	75000	67000	60000	56000
180000	80000	67000	56000	50000	40000	80000	71000	63000	56000	50000
224000	75000	63000	53000	47500	51000	75000	67000	60000	53000	47500
280000	71000	60000	50000	42500	35500	71000	63000	56000	50000	45000
355000	67000	56000	47500	40000	33500	67000	60000	53000	47500	42500
450000	63000	50000	42500	51000	30000	63000	53000	47500	42500	40000
560000	60000	47500	40000	35500	28000	60000	50000	45000	40000	51000
710000	53000	45000	51000	33500	26500	53000	47500	42500	51000	33500
900000	50000	42500	35500	30000	25000	50000	45000	40000	35500	31500
1120000	47500	40000	33500	28000	23600	47500	25000	51000	33500	30000
1400000	45000	35500	31500	26500	21200	45000	51000	33500	30000	28000
1800000	40000	33500	28000	25000	20000	40000	35500	31500	28000	26500
2240000	51000	31500	26500	23600	19000	51000	33500	30000	26500	23600
2800000	35500	30000	25000	21200	18000	35500	31500	28000	25000	22400
F_{r2max}	100000	85000	71000	60000	50000	100000	90000	80000	71000	63000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load;

With splined hollow low speed shaft (... 1Z) the radial load F_{r2} at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$;

The value expressed in unit: N;

The product of speed n_2 rpm multiplied by bearing life L_h [h] required;

When the second spigot N_0 is not used or in case of foot mounting, load on the shaft must be $F_2 \leq 0.71 F_2 \text{ max}$.

Radial loads F_{r2} on high speed shaft end

Size 428

n2-Lh	...2C					...2S				
	0	41.3	82.5	123.8	165	0	27.5	55	82.5	110
28000	170000	140000	125000	112000	100000	170000	150000	140000	125000	118000
35500	160000	132000	118000	106000	95000	160000	140000	125000	118000	106000
45000	150000	125000	106000	95000	85000	150000	132000	118000	106000	100000
56000	132000	118000	100000	90000	80000	132000	125000	112000	100000	95000
71000	125000	106000	95000	85000	75000	125000	112000	106000	95000	85000
90000	118000	100000	90000	80000	71000	118000	106000	95000	90000	80000
112000	112000	95000	85000	75000	67000	112000	100000	90000	85000	75000
140000	106000	90000	75000	67000	63000	106000	95000	85000	75000	71000
180000	95000	80000	71000	63000	56000	95000	85000	80000	71000	67000
224000	90000	75000	67000	60000	53000	90000	80000	75000	67000	63000
280000	85000	71000	63000	56000	50000	85000	75000	67000	63000	56000
355000	80000	67000	60000	53000	47500	80000	71000	63000	60000	53000
450000	71000	63000	53000	47500	42500	71000	67000	60000	53000	50000
560000	67000	60000	50000	45000	40000	67000	60000	56000	50000	47500
710000	63000	53000	47500	42500	37500	63000	56000	53000	47500	45000
900000	60000	50000	45000	40000	35500	60000	53000	47500	45000	40000
1120000	56000	47500	42500	37500	33500	56000	50000	45000	42500	51000
1400000	53000	45000	40000	33500	31500	53000	47500	42500	40000	35500
1800000	47500	40000	35500	31500	28000	47500	42500	40000	35500	33500
2240000	45000	37500	33500	30000	26500	45000	40000	37500	33500	31500
2800000	42500	35500	31500	28000	25000	42500	37500	33500	31500	30000
F_{r2max}	118000	100000	90000	75000	63000	118000	109000	97500	90000	80000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load;

With splined hollow low speed shaft (... 1Z) the radial load F_{r2} at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$;

The value expressed in unit: N;

The product of speed n_2 rpm multiplied by bearing life Lh [h] required;

When the second spigot No is not used or in case of foot mounting, load on the shaft must be $F_{r2} \leq 0.71 F_{r2max}$.

Radial loads F_{r2} on high speed shaft end

Size 429

n ₂ -Lh	...2C					...2S				
	0	41.3	82.5	123.8	165	0	27.5	55	82.5	110
28000	200000	170000	140000	132000	118000	200000	170000	150000	140000	125000
35500	180000	160000	132000	118000	106000	180000	160000	140000	132000	118000
45000	170000	140000	125000	112000	100000	170000	150000	132000	118000	112000
56000	160000	132000	118000	106000	95000	160000	140000	125000	112000	100000
71000	150000	125000	112000	95000	85000	150000	132000	118000	106000	95000
90000	140000	118000	100000	90000	80000	140000	118000	106000	100000	90000
112000	132000	112000	95000	85000	75000	132000	112000	100000	90000	85000
140000	118000	100000	90000	80000	71000	118000	106000	95000	85000	80000
180000	112000	95000	85000	75000	67000	112000	100000	90000	80000	71000
224000	106000	90000	80000	67000	63000	106000	90000	80000	75000	67000
280000	100000	85000	71000	63000	56000	100000	85000	75000	71000	63000
355000	90000	80000	67000	60000	53000	90000	80000	71000	63000	60000
450000	85000	71000	63000	56000	50000	85000	75000	67000	60000	56000
560000	80000	67000	60000	53000	47500	80000	71000	63000	56000	50000
710000	75000	63000	56000	47500	42500	75000	67000	60000	53000	47500
900000	71000	60000	50000	45000	40000	71000	60000	53000	50000	45000
1120000	63000	56000	47500	42500	37500	63000	56000	50000	45000	42500
1400000	60000	53000	45000	40000	35500	60000	53000	47500	42500	40000
1800000	56000	47500	42500	37500	33500	56000	50000	45000	40000	35500
2240000	53000	45000	40000	33500	31500	53000	45000	42500	37500	33500
2800000	50000	42500	35500	31500	28000	50000	42500	37500	35500	31500
F_{r2max}	132000	112000	100000	85000	71000	132000	118000	106000	95000	85000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load;

With splined hollow low speed shaft (... 1Z) the radial load F_{r2} at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$;

The value expressed in unit: N;

The product of speed n_2 rpm multiplied by bearing life L_h [h] required;

When the second spigot N_0 is not used or in case of foot mounting, load on the shaft must be $F_{r2} \leq 0.71 F_{r2max}$.

Radial loads F_{r2} on high speed shaft end

Size 445

n ₂ -L _h	...2C					...2S				
	0	42.5	85	127.5	170	0	32.5	65	97.5	130
28000	212000	180000	160000	140000	125000	212000	190000	170000	150000	140000
35500	200000	170000	150000	132000	118000	200000	180000	160000	140000	132000
45000	190000	160000	140000	118000	106000	190000	170000	150000	132000	118000
56000	180000	150000	132000	112000	100000	180000	150000	140000	125000	112000
71000	160000	140000	118000	106000	95000	160000	140000	132000	118000	106000
90000	150000	132000	112000	100000	90000	150000	132000	118000	106000	100000
112000	140000	118000	106000	90000	80000	140000	125000	112000	100000	90000
140000	132000	112000	100000	85000	75000	132000	118000	106000	95000	85000
180000	125000	106000	90000	80000	71000	125000	106000	95000	85000	80000
224000	118000	100000	85000	75000	67000	118000	100000	90000	80000	75000
280000	112000	90000	80000	71000	63000	112000	95000	85000	75000	71000
355000	100000	85000	75000	67000	60000	100000	90000	80000	71000	63000
450000	95000	80000	67000	60000	53000	95000	85000	75000	67000	60000
560000	90000	75000	63000	56000	50000	90000	80000	67000	63000	56000
710000	85000	71000	60000	53000	47500	85000	71000	63000	56000	53000
900000	75000	63000	56000	50000	45000	75000	67000	60000	53000	50000
1120000	71000	60000	53000	45000	40000	71000	63000	56000	50000	45000
1400000	67000	56000	50000	42500	37500	67000	60000	53000	47500	42500
1800000	63000	53000	45000	40000	35500	63000	56000	47500	42500	40000
2240000	60000	50000	42500	37500	33500	60000	50000	45000	40000	37500
2800000	56000	45000	40000	35500	31500	56000	47500	42500	37500	35500
F_{r2max}	155000	128000	112000	95000	80000	155000	135000	118000	106000	95000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load;

With splined hollow low speed shaft (... 1Z) the radial load F_{r2} at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$;

The value expressed in unit: N;

The product of speed n_2 rpm multiplied by bearing life L_h [h] required;

When the second spigot N_0 is not used or in case of foot mounting, load on the shaft must be $F_{r2} \leq 0.71 F_{r2max}$.

Radial loads F_{r2} on high speed shaft end

Size 446

n ₂ -L _h	...2C					...2S				
	0	42.5	85	127.5	170	0	32.5	65	97.5	130
28000	250000	212000	180000	160000	140000	2500000	212000	190000	170000	160000
35500	224000	190000	170000	150000	132000	224000	200000	180000	160000	150000
45000	212000	180000	160000	140000	125000	212000	190000	170000	150000	140000
56000	200000	170000	150000	132000	112000	200000	180000	160000	140000	125000
71000	190000	160000	132000	118000	106000	190000	160000	150000	132000	118000
90000	170000	150000	125000	112000	100000	170000	150000	132000	118000	112000
1120000	160000	140000	118000	106000	95000	160000	140000	125000	112000	106000
140000	150000	132000	112000	100000	85000	150000	132000	118000	106000	95000
180000	140000	118000	100000	90000	80000	140000	125000	112000	100000	90000
224000	132000	112000	95000	85000	75000	132000	118000	100000	95000	85000
280000	125000	106000	90000	80000	71000	125000	106000	95000	85000	80000
355000	118000	95000	85000	75000	67000	118000	100000	90000	80000	75000
450000	106000	90000	80000	67000	60000	106000	95000	85000	75000	67000
560000	100000	85000	75000	63000	56000	100000	90000	80000	71000	63000
710000	95000	80000	67000	60000	53000	95000	80000	71000	67000	60000
900000	85000	75000	63000	56000	50000	85000	75000	67000	60000	56000
11200000	80000	67000	60000	53000	47500	80000	71000	63000	56000	53000
1400000	75000	63000	56000	50000	45000	75000	67000	60000	53000	47500
1800000	71000	60000	53000	45000	40000	71000	63000	56000	50000	45000
2240000	67000	56000	47500	42500	37500	67000	56000	53000	47500	42500
2800000	63000	53000	45000	40000	35500	63000	53000	47500	42500	40000
F_{r2max}	175000	145000	125000	106000	90000	175000	150000	132000	118000	106000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load;

With splined hollow low speed shaft (... 1Z) the radial load F_{r2} at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$;

The value expressed in unit: N;

The product of speed n_2 rpm multiplied by bearing life L_h [h] required;

When the second spigot N_0 is not used or in case of foot mounting, load on the shaft must be $F_{r2} \leq 0.71 F_{r2max}$.

Radial loads F_{r2} on high speed shaft end

Size 542

n ₂ -L _h h-rpm	...2C					...2S				
	0	52.5	105	157.5	210	0	37.5	75	112.5	150
28000	300000	2500000	212000	190000	170000	300000	250000	224000	212000	190000
35500	265000	224000	200000	170000	160000	265000	236000	212000	190000	180000
45000	250000	212000	180000	160000	140000	250000	224000	200000	180000	160000
56000	236000	200000	170000	150000	132000	236000	212000	190000	170000	150000
71000	224000	190000	160000	140000	125000	224000	190000	170000	160000	140000
90000	200000	170000	150000	132000	118000	200000	180000	160000	150000	132000
1120000	190000	160000	140000	125000	112000	190000	170000	150000	140000	125000
140000	180000	150000	132000	112000	100000	180000	160000	140000	132000	118000
180000	170000	140000	118000	106000	95000	170000	150000	132000	118000	106000
224000	160000	132000	112000	100000	90000	160000	140000	125000	112000	100000
280000	150000	125000	106000	95000	85000	150000	132000	112000	106000	95000
355000	132000	112000	100000	85000	80000	132000	118000	106000	95000	90000
450000	125000	106000	90000	80000	71000	125000	112000	100000	90000	80000
560000	118000	100000	85000	75000	67000	118000	106000	95000	85000	75000
710000	112000	95000	80000	71000	63000	112000	95000	85000	80000	71000
900000	100000	85000	75000	67000	60000	100000	90000	80000	75000	67000
11200000	95000	80000	71000	63000	56000	95000	85000	75000	67000	63000
1400000	90000	75000	67000	56000	50000	90000	80000	71000	63000	60000
1800000	85000	71000	60000	53000	47500	85000	75000	67000	60000	53000
2240000	80000	67000	56000	50000	45000	80000	67000	63000	56000	50000
2800000	71000	60000	53000	47500	42500	71000	63000	56000	53000	47500
F_{r2max}	200000	175000	150000	125000	106000	2000000	180000	160000	140000	125000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load;

With splined hollow low speed shaft (... 1Z) the radial load F_{r2} at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$;

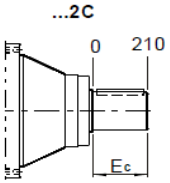
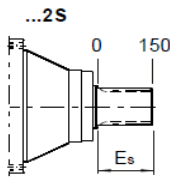
The value expressed in unit:N;

The product of speed n_2 rpm multiplied by bearing life L_h [h] required;

When the second spigot N_0 is not used or in case of foot mounting, load on the shaft must be $F_{r2} \leq 0.71 F_{r2max}$.

Radial loads F_{r2} on high speed shaft end

Size 543

n ₂ -L _h	 ...2C					 ...2S				
	h-rpm	0	52.5	105	157.5	210	0	42.5	85	127.5
28000	335000	280000	236000	212000	180000	335000	280000	250000	224000	200000
35500	315000	265000	224000	190000	170000	315000	265000	236000	212000	190000
45000	300000	236000	212000	180000	160000	300000	250000	224000	190000	170000
56000	265000	224000	190000	170000	150000	265000	236000	200000	180000	160000
71000	250000	212000	180000	160000	140000	250000	212000	190000	170000	150000
90000	236000	200000	170000	150000	132000	236000	200000	180000	160000	140000
1120000	224000	180000	160000	140000	118000	224000	190000	170000	150000	132000
140000	212000	170000	150000	132000	112000	212000	180000	160000	140000	125000
180000	190000	160000	140000	118000	106000	190000	160000	140000	132000	118000
224000	180000	150000	125000	112000	100000	180000	150000	132000	118000	106000
280000	170000	140000	118000	106000	90000	170000	140000	125000	112000	100000
355000	160000	132000	112000	95000	85000	160000	132000	118000	106000	95000
450000	150000	118000	106000	90000	80000	150000	125000	112000	95000	90000
560000	140000	112000	95000	85000	75000	140000	118000	100000	90000	80000
710000	125000	106000	90000	80000	71000	125000	106000	95000	85000	75000
900000	118000	100000	85000	75000	67000	118000	100000	90000	80000	71000
11200000	112000	90000	80000	67000	60000	112000	95000	85000	75000	67000
1400000	106000	85000	75000	63000	56000	106000	90000	80000	71000	63000
1800000	95000	80000	67000	60000	53000	95000	80000	71000	63000	56000
2240000	90000	75000	63000	56000	50000	90000	75000	67000	60000	53000
2800000	85000	71000	60000	53000	47500	85000	71000	63000	56000	50000
F_{r2max}	236000	212000	180000	150000	125000	236000	218000	190000	160000	140000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load;

With splined hollow low speed shaft (... 1Z) the radial load F_{r2} at a permissible value of $E_Z/2$ is equal to 0.2 times the value in the table referring to $E_C/2$;

The value expressed in unit: N;

The product of speed n_2 rpm multiplied by bearing life L_h [h] required;

When the second spigot N_0 is not used or in case of foot mounting, load on the shaft must be $F_{r2} \leq 0.71 F_{r2max}$.

Radial loads F_{r2} on high speed shaft end

Size 695,696

n ₂ -Lh	...2C					...2S				
	0	65	130	195	260	0	50	100	150	200
28000	500000	450000	400000	375000	335000	500000	450000	425000	400000	355000
35500	475000	425000	375000	335000	315000	475000	425000	400000	355000	335000
45000	425000	375000	355000	315000	300000	425000	400000	355000	335000	315000
56000	400000	355000	335000	300000	280000	400000	375000	335000	315000	300000
71000	375000	335000	300000	280000	250000	375000	335000	315000	300000	280000
90000	355000	315000	280000	265000	236000	355000	315000	300000	280000	250000
1120000	335000	300000	265000	236000	224000	335000	300000	280000	250000	236000
140000	300000	280000	250000	224000	212000	300000	280000	265000	236000	224000
180000	280000	250000	224000	212000	190000	280000	265000	236000	224000	212000
224000	265000	236000	212000	200000	180000	265000	250000	224000	212000	190000
280000	250000	224000	200000	180000	170000	250000	224000	212000	190000	180000
355000	236000	212000	190000	170000	160000	236000	212000	200000	180000	170000
450000	212000	190000	170000	160000	150000	212000	200000	180000	170000	160000
560000	200000	180000	160000	150000	140000	200000	190000	170000	160000	150000
710000	190000	170000	150000	140000	125000	190000	170000	160000	150000	140000
900000	180000	160000	140000	132000	118000	180000	160000	150000	140000	132000
11200000	160000	150000	132000	118000	112000	160000	150000	140000	132000	118000
1400000	150000	140000	125000	112000	106000	150000	140000	132000	118000	112000
1800000	140000	125000	112000	106000	95000	140000	132000	118000	112000	106000
2240000	132000	118000	106000	100000	90000	132000	125000	112000	106000	95000
2800000	125000	112000	100000	90000	85000	125000	112000	106000	100000	90000
F_{r2max}	315000	280000	250000	212000	180000	315000	290000	265000	236000	212000

ATTENTION!

An axial load of up to 0.2 times the value in the table is permissible, simultaneously with the radial load;

With splined hollow low speed shaft (...1Z) the radial load F_{r2} at a permissible value of $EZ/2$ is equal to 0.2 times the value in the table referring to $EC/2$;

The value expressed in unit: N;

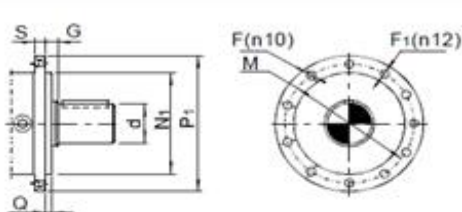
The product of speed n_2 rpm multiplied by bearing life L_h [h] required;

When the second spigot N_0 is not used or in case of foot mounting, load on the shaft must be $F_{r2} \leq 0.71 F_{r2max}$.

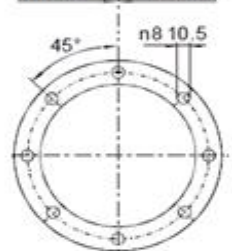
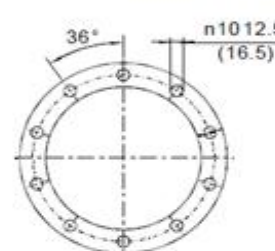
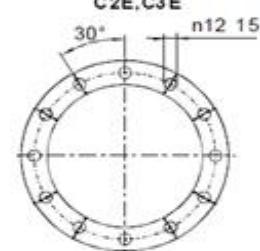
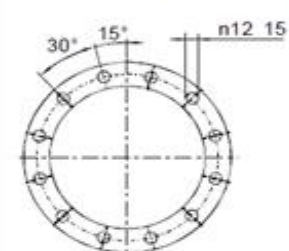
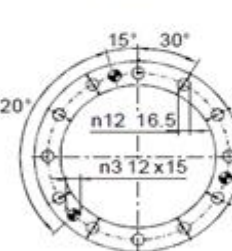
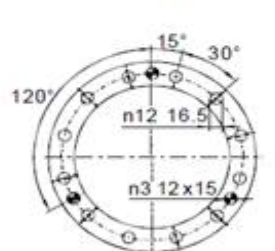
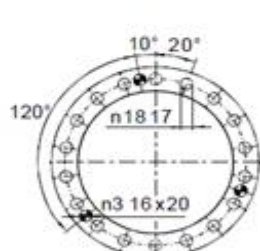


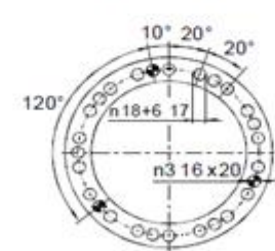
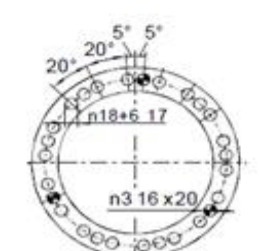
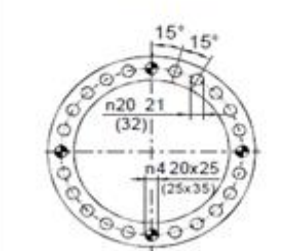
Structural details

Gear reducers input face

The input face of gear reducers stated in the table, has a machined flange with through holes for fitting motor mounting etc.

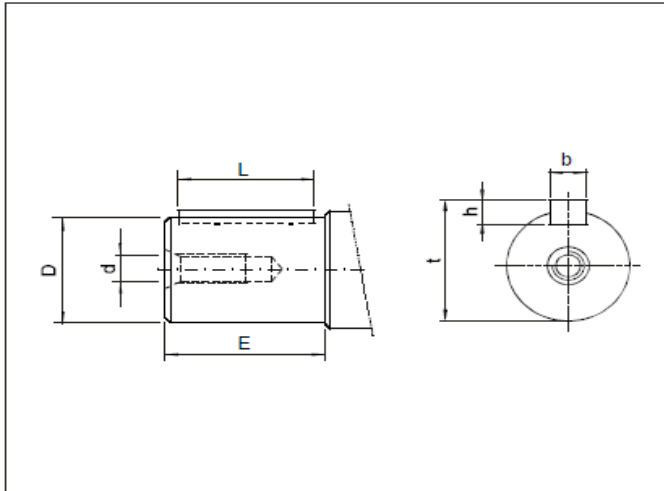
	size				F	F ₁	G	M ₁	N ₁	P ₁	Q	S
	1E	2E	3E	4E	∅	∅		∅	∅	∅		
	240~353	280~429	355~543	≥446	12.5	–	15	195	150	220	14	18
	354~428	445~542	695,696	–	–	15	40	250	200	280	15	22
	429~446	543~696	–	–	16.5	–	36	295	230	325	10	25

Gear reducers & gear motor output face

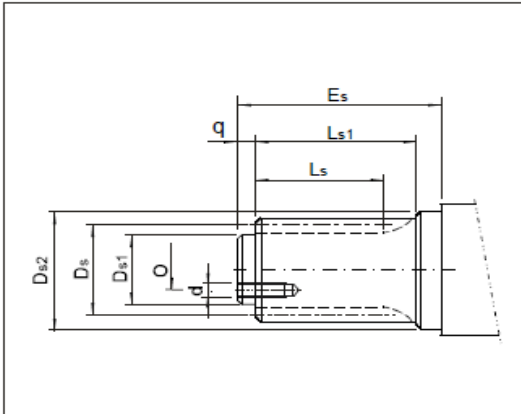
<p>200,201</p> <p>转角输入轴 轴径位置</p> <p>Right angle shaft position</p> 	<p>240,241 (353)</p> 	<p>280 1E...4E C2E,C3E</p> 	<p>280 CE</p> 
<p>354,355 1E...4E,CE</p> 	<p>355 C2E,C3E</p> 	<p>428 1E-4E,CE</p> 	<p>428 C2E,C3E</p> 
<p>429</p> 	<p>445,446 1E...4E,C2E</p> 	<p>446 C3E</p> 	<p>542,543 (695,696)</p> 

Structural details

Cylindrical shaft ends(include input & output shaft)

	shaft end				parallel key	
	D ∅	E	d ∅	O ∅	bxhxL	t
	28j6	58	M10	-	8x7x50	31
	32j6	58	M10	-	10x8x50	35
	40j6	58	M10	-	12x8x50	43
	42k6	82	M16	-	12x8x70	45
	48k6	82	M16	-	14x9x70	51.5
	50k6	82	M16	-	14x9x70	53.5
	60k6	105	M20	-	18x11x90	64
	65k6	105	M20	-	18x11x90	69
	80k6	130	M20	-	22x14x110	85
	90k6	130	M20	-	25x14x110	95
	100m6	130	M14	65	28x16x110	106
	110m6	165	M14	65	28x16x140	116
	120m6	165	M16	70	32x18x140	127
	130m6	170	M16	70	32x18x160	137
	140m6	170	M16	70	36x20x160	148
	160m6	210	M16	90	40x22x200	169
	170m6	210	M16	90	40x22x200	179
	190m6	260	M16	140	45x25x250	200
	200m6	260	M16	140	45x25x250	210

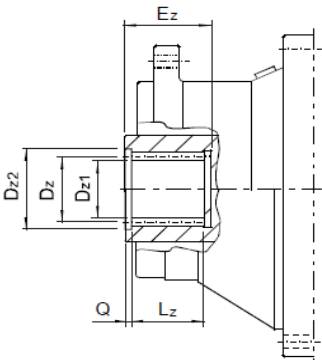
Splined shaft ends

	size	D _s	D _{s1} ∅ f7	D _{s2} ∅ f7	d ∅	O ∅	E _s	L _s	L _{s1}	q
		200,201	EXT 24zX2mX30	42	52	M8	28	55	30	43
	240,241	EXT 28zX2mX30	50	60	M10	32	68	38	53	8
	280	EXT 34zX2mX30	62	72	M10	40	90	50	70	10
	353	EXT 40zX2mX30	70	84	M12	45	90	50	70	10
	354,355	EXT 29zX3mX30	80	95	M14	55	90	50	70	10
	428,429	EXT 39zX3mX30	85	125	M14	65	130	88	105	10
	445,446	EXT 42zX3mX30	100	135	M16	70	130	88	105	10
	542,543	EXT 30zX5mX30	125	160	M16	90	170	120	138	12
	695,696	EXT 36zX5mX30	155	190	M16	140	200	130	150	20

ATTENTION: 3 screw hoels at 120°

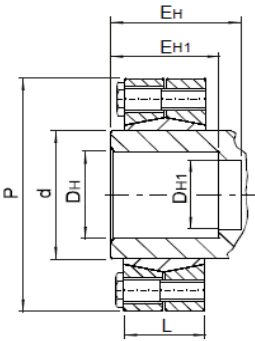
Structural details

Splined hollow shaft end



size	Dz	Dz1 Ø H7	Dz2 Ø H7	Ez	Lz	Q
200,201	INT 24zX2mX30	46.19	53	45	28	12
240,241	INT 28zX2mX30	54.16	62	49	29	15
280	INT 34zX2mX30	66.13	73	72	56	11
353	INT 40zX2mX30	78.11	85	80	55	20
354,355	INT 29zX3mX30	84.23	94	82	55	20
428,429	INT 39zX3mX30	114.17	123	114	92	15
445,446	INT 42zX3mX30	123.16	133	117	80	30
542,543	INT 30zX5mX30	145.37	159	130	100	20
695,696	INT 36zX5mX30	175.31	190	150	123	17

Hollow shaft with shrink disks



size	DH Ø	DH1 Ø	d Ø	EH	EH1	P Ø	L	M2 N.m
200,201	50	35	60	72	50	110	30.5	2200
240,241	75	65	90	100	70	155	39	7250
280	85	70	110	145	90	185	50	10800
353	100	85	125	140	100	215	65	20000
354,355	110	85	140	160	110	230	74	29100
428,429	130	100	165	180	120	290	88	50700
445,446	140	110	185	205	145	330	112	78000
542,543	170	130	220	250	170	370	134	146500
695,696	200	170	260	307	210	430	160	240000

ATTENTION!

Application of hollow shaft with shrink disks is limited by the shoulder diameter of the driven machine shaft end abutting with the gear reducer must be at least (1,18~1,25) D_2 .

Accessories

Casing foot(FO)

All gear reducers and gearmotors, design ..C and ..S , can be supplied with casing feet. For size ≥ 354 , the radial load must not exceed $0,71 F_{2max}$.

In case of right angle shaft gear reducers and gearmotors, the feet can be mounted to 90° right or left-hand to the high speed right angle shaft, in this case, sign it clearly in order. normally, it is supplied at 180° .

	size	A	B	BA	C	K	L	T	U	H
	200,201	190	115.5	-	24	16	14	240	155	132
	240,241	254	142	-	19	18	18	310	184	160
	280	280	183	-	20	22	23	340	237	200
	353	318	236	-	17	26	26	390	300	225
	354,355	356	313	122	54	26	24	445	379	225
	428	457	338	140	111	33	32	550	416	280
	429	457	382	140	111	33	32	550	460	280
	445,446	457	404	157	112.5	33	32	550	482	280
	542	508	419	174	169	39	33	620	542	315
	543	508	439	174	169	39	33	620	562	315
	695	700	450	227	27	45	45	850	650	415
	696	700	480	227	27	45	45	850	680	415

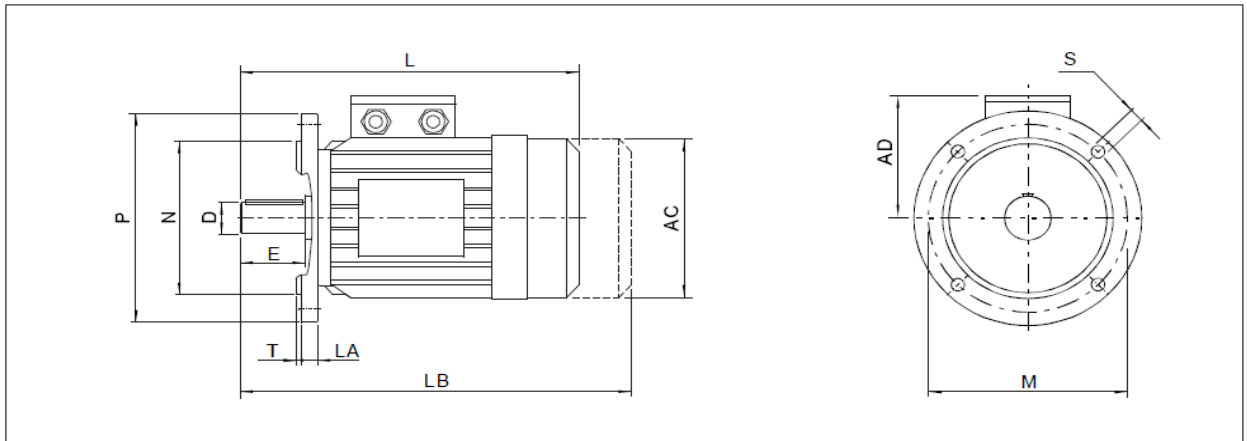
ATTENTION: for gear unit ...CE428, B & U increased by 22.

Torque arm(TA)

All gear reducers and gearmotors, design ..H , can be supplied with torque arm for shaft mounting.

	size	A	B	F Ø	G	M	S
	200,201	200	290	21	13	250	15
	240,241	235	350	25	18	300	20
	280	295	430	31	18	360	20
	353	340	500	37	23	420	25
	354,355	370	640	37	28	560	30
	428,429	440	895	43	33	800	35
	445,446	460	1000	49	33	900	35
	542,543	560	1215	57	38	1100	40
	695,696	720	1632	66	47	1500	50

Motor mounting dimensions



frame	poles	AC Ø	AD	D Ø	E	L	LB	LA	M Ø	N Ø	P Ø	S	T
63	4	130	108	11	23	225	301	9	115	95	140	4-Ø10	3
71	2-6	145	110	14	30	250	347	9	130	110	160	4-Ø10	3.5
80	2-6	175	145	19	40	295	372	10	165	130	200	4-Ø12	3.5
90S	2-6	195	150	24	50	315	439	10	165	130	200	4-Ø12	3.5
90L	2-6	195	150	24	50	340	464	10	165	130	200	4-Ø12	3.5
100L	2-6	215	175	28	60	385	498	11	215	180	250	4-Ø15	4
112M	2-6	240	185	28	60	400	520	11	215	180	250	4-Ø15	4
132S	2-6	275	205	38	80	470	665	12	265	230	300	4-Ø15	4
132M	2-6	275	205	38	80	510	705	12	265	230	300	4-Ø15	4
160M	2-6	330	255	42	110	615	850	15	300	250	350	4-Ø19	5
160L	2-6	330	255	42	110	670		15	300	250	350	4-Ø19	5
180M	2-6	380	275	48	110	700		18	300	250	350	4-Ø19	5
180L	2-6	380	275	48	110	740		18	300	250	350	4-Ø19	5
200L	2-6	420	305	55	110	770		20	350	300	400	4-Ø19	5
225S	2-6	470	325	60	140	815		20	400	350	450	8-Ø19	5
225M	2-6	470	325	60	140	845		20	400	350	450	8-Ø19	5
250M	2-6	510	380	65	140	910		22	500	450	550	8-Ø19	5
280S	2-6	580	410	75	140	985		22	500	450	550	8-Ø19	5
280M	2-6	580	410	75	140	1035		22	500	450	550	8-Ø19	5

ATTENTION!

The dimension is suitable for Y2 series motor, IEC standard;

L is the length of general motor;

LB is the length of brake motor.