

Zero Backlash Torque Limiters

ZBC Heavy Duty/NBC Light Duty

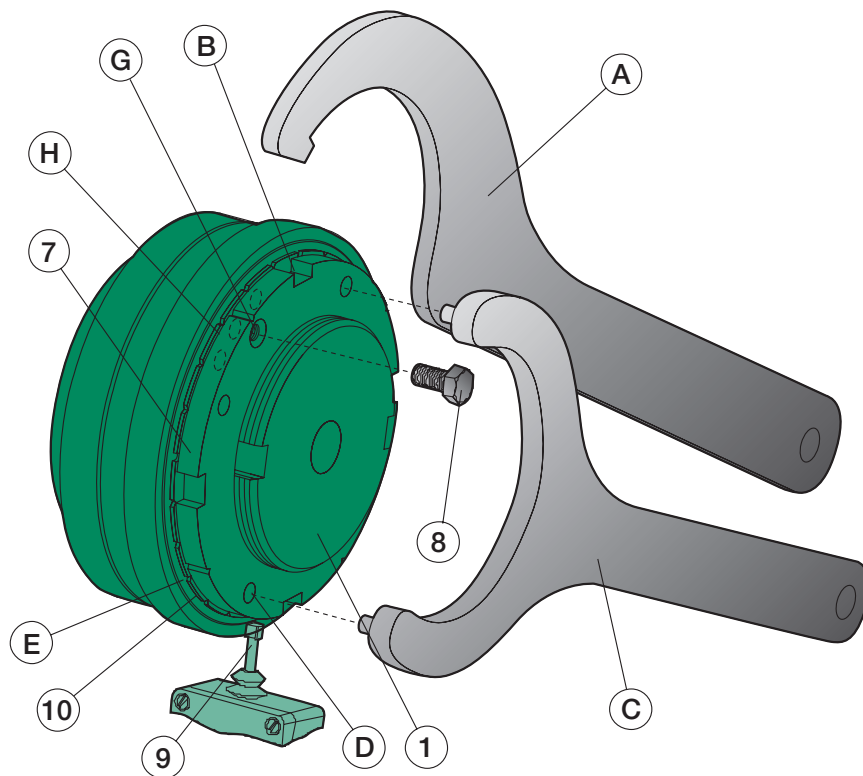
The advantages of the system, compared to the traditional types

- Torque limiters with backlash close to zero
 - ZBC is the heavy duty series
 - NBC is the light duty series
- Lower moment of inertia, reduced dimensions and weight
- Longer lifetime, reduced wear

TORQUE ADJUSTMENT

Insert wrench (A) into the seats (B) or the wrench (C) into the holes (D) and turn the nut clockwise up to the end of the stroke (fig.3). Then go back anticlockwise (fig.4) for only one indent (E) to avoid the blocking between the disc springs (6) and the hub (1): this is the “zero indent”, corresponding to the minimum torque. Starting from the “zero indent”, turn the nut anticlockwise (fig.5) for a number of indents (E) corresponding to the requested disengagement torque, according to the diagram on the label (F) on the outer diameter of the ZBC - NBC torque limiter.

Put soft Loctite on the securing screw (8) and tighten it (fig.6) in the threaded hole (G) of the nut (7), in correspondence to one of the holes (H) on the locking washer (10).



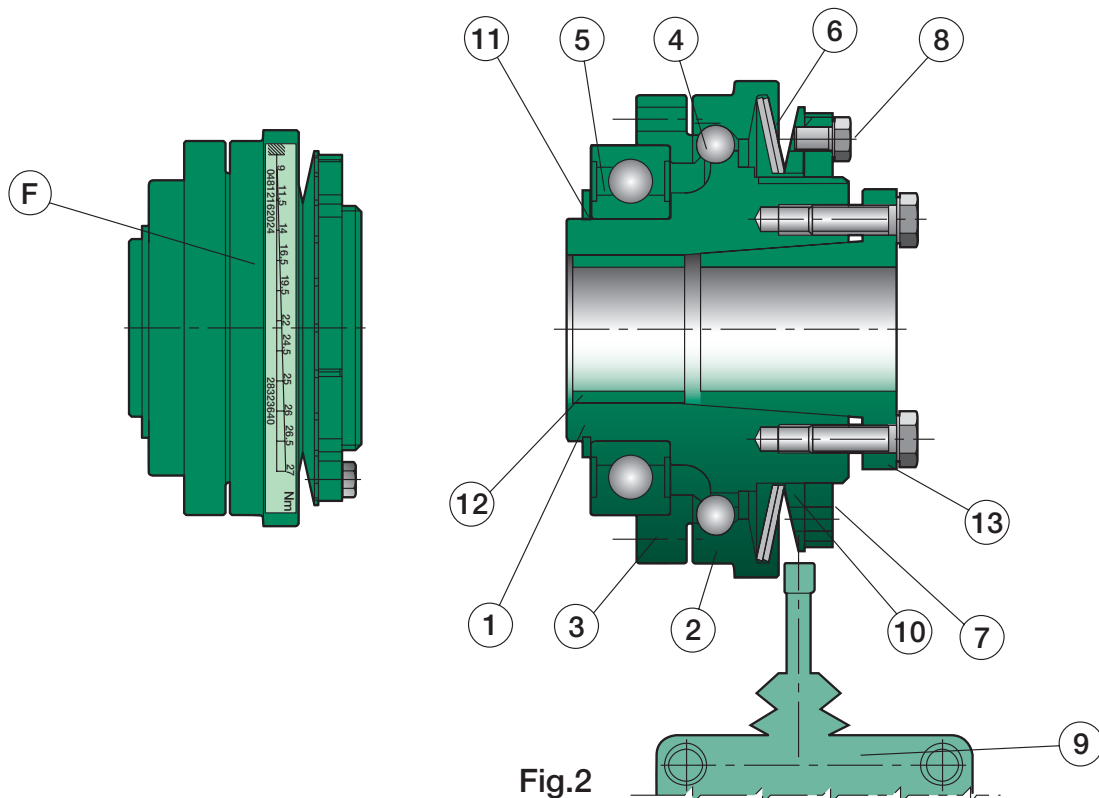
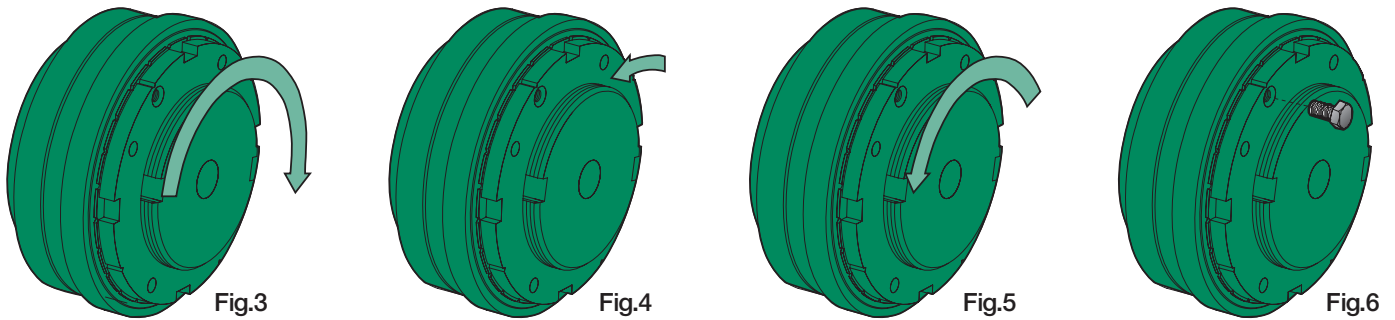
Zero Backlash Torque Limiters

How they work

During normal operations the ZBC Heavy Duty - NBC Light Duty torque limiter (fig.2) transmits the torque from the hub (1) to the flange (3) through a ball crown (4) forced by the pressure of the disc springs (6) on the moving flange (2) into the seats on the two parts (1) and (3). In case of overload, when the torque demand exceeds the pre-set value, both the parts (1) and (3) are disengaged and they transmit only a small residual torque: the balls are pressed out of the indentations of the flange (3), thus pushing the moving part (2) axially against the force of the disc springs (6), and activating the emergency stop switch of the motor (9). The re-engagement is automatic at the pre-set torque when

the torque demand drops. The synchronous type re-engages once per revolution at a reference point and keep the hub (1) and the flange (3) of the torque limiter synchronised. The disc springs are working only in the negative area of their characteristics (fig.1), so the adjustment nut (7), when tightened anticlockwise, provides an increasing axial load to the disc springs (6) and a higher disengaging torque: when the pre-set torque level is reached the nut (7) is locked in position by means of the locking screw (8).

ZBC holds 8 fixing threaded holes and a heavy duty bearing, NBC 6 fixing threaded holes and a light duty bearing.

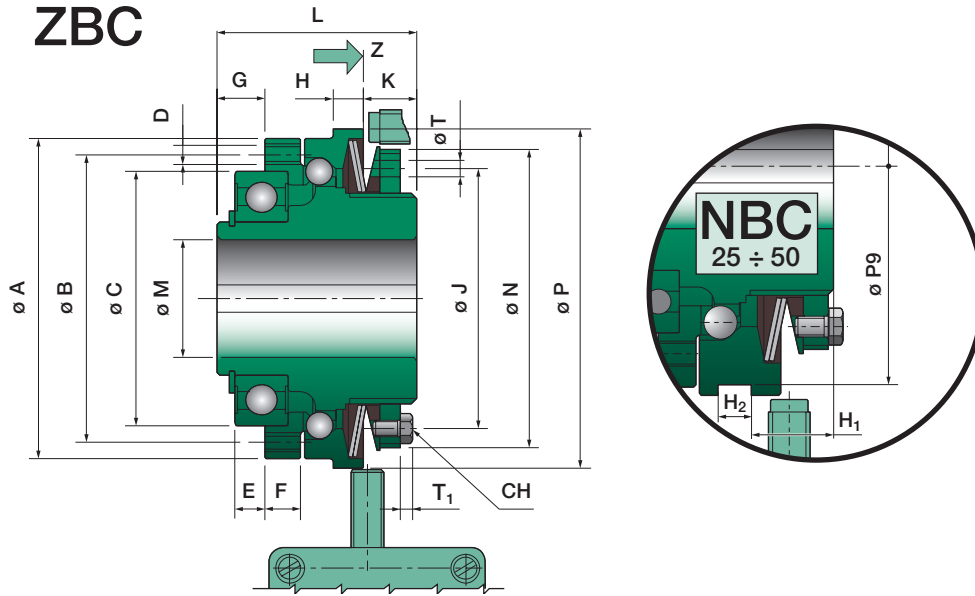


ZBC-NBC Zero Backlash Torque Limiters – Type H

Basic Form Pilot Bored



ZBC



ZBC Dimensions

Size	Overall Dimensions																		
	A	B	C ^{±5}	D	E	F	G	H	K	J	L	M		N	P	T	T ₁	CH	Z
												Min	Max						
25	65	56	47	8xM4	5	7.5	8	7	12	54.5	40	8	20	63	70	5	2.8	7	1.2
30	80	71	62	8xM5	7	8	11	8	14	69	48	10	30*	77	85	5	2.8	7	1.5
40	95	85	75	8xM6	9	10.5	14	9	16	77	59	14	35*	88	100	5	3.5	8	1.8
50	110	100	90	8xM6	10	12	16	10	17	87.5	64	18	45*	100	115	6	4	10	2.0
60	130	116	100	8xM8	10	12	18	12	21	106	75	24	50	122	135	7	4	10	2.2

*d max with keyway seat according to DIN 6885/3

NBC Dimensions

Size	Overall Dimensions																					
	A	B	C ^{±5}	D	E	F	G	H	H ₁	H ₂	K, K ₁	J	L	M		N	P	P9	T	T ₁	CH	Z
														Min	Max							
11	40	35	30	6xM3	2	5	4.5	6	—	—	7	32	24	6	11	39.5	45	—	4	2.1	5.5	0.8
16	47	42	37	6xM3	2	6	5	8	—	—	9.5	36.5	29	8	16*	43	50	—	4	2.1	5.5	1
20	60	53	47	6xM4	3	7	6	9	—	—	9.5	36.5	33	9	20	43	65	—	4	2.1	5.5	1.2
25	77	69	62	6xM5	4	7.5	8	—	14.9	7.5	10.2	54.5	41	12	20	63	80	75	5	2.8	7	1.2
30	90	80	68	6xM6	5	8	10	—	17.4	7.5	11	69	47	15	25	77	95	90	5	2.8	7	1.5
40	106	90	80	6xM6	5	9	10	—	20	8	12.6	77	52	22	35*	88	110	105	5	3.5	8	1.8
50	125	112	100	6xM8	5	11	10	—	23.5	9	14.7	87.5	59	32	45	100	130	125	6	4	10	2.0

*d max with keyway seat according to DIN 6885/3

ZBC-NBC Zero Backlash Torque Limiters – Type H

Basic Form Pilot Bored

Arrangement Possibilities (for larger transmissions)

Arrangement Possibilities				ZBC				NBC					
Range	Type			Size	Disc Springs		Torque Limiter Side (mm)		Size	Disc Springs		Min/Max Bore (mm)	
	Pre-Bored	with Cone Clamping Element	Form		Code	Layout	Min	Max		Code	Layout	Min	Max
ZBC Quick Guard	H	J	Basic Type	25	S-Light	1	8	20	11	S-Light	1	6	11
ZBC Synchronous	K	L	for Large Drives	30			10	30***	16			8	16
NBC* Quick Guard				40	M-Medium	2	12	35***	20	M-Medium	2	9	20
NBC* Synchronous	M**	N**-P**-R**	with Coupling	50			16	45***	25			8	20
				60	LL-Heavy	4	22	50	30	L-Heavy	3	10	30***
									40	LL-Heavy	4	12	35***
									50			16	45***

Stop Switch

Stop Switch	
Type	Description
A	Mechanical
B	Proximity sensor
C	Proximity sensor ext. transmit

*Only in the form H-K-J-L

** Only in the range ZBC

*** d max with keyway seat according to DIN 6885/3

Technical Characteristics

ZBC															NBC								
Disengagement Torque (Nm)				Coupling Type											Disengagement Torque (Nm)					Max Speed			
Size	Disc Springs			Size	Couplings Nominal Torque			Misalignments								Size	Disc Springs						
	S	M	LL		M-N	P-R 92 Shore A	P-R 98 Shore A	M-N			P-R 92 Shore A			P-R 98 Shore A			Max Speed	S	M		L	LL	
	Nm	Nm	Nm		Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm		Δ ang (°)	n/1'	n/1'				
25	3-14	6-28	13-56	53	70	70	120	0.4	—	1	1.4	0.14	1	1.4	0.10	0.90	4000	11	0.65-3	1.3-6	2-9	2.6-12	4000
30	9-35	18-70	40-140	72	180	190	320	0.5	—	1	1.5	0.15	1	1.5	0.11	0.90	3000	16	2-5	4-10	6-15	8-20	4000
40	19-65	38-130	78-260	72 89	180 360	380	650	0.5 0.6	—	1	1.8	0.17	1	1.8	0.12	0.90	2500	20	4-10	8-20	12-30	16-40	4000
50	35-110	80-220	160-440	89	430	530	900	0.6	—	1	2.0	0.19	1	2.0	0.14	0.90	2000	25	4-14	8-28	12-42	16-56	4000
60	80-185	160-370	320-740	118	790	620	1050	0.8	—	1	2.1	0.23	1	2.1	0.16	0.90	1200	30	9-35	18-70	27-105	40-140	3000
																		40	19-65	38-130	57-195	78-260	2500
																		50	35-110	80-220	120-330	160-440	2000

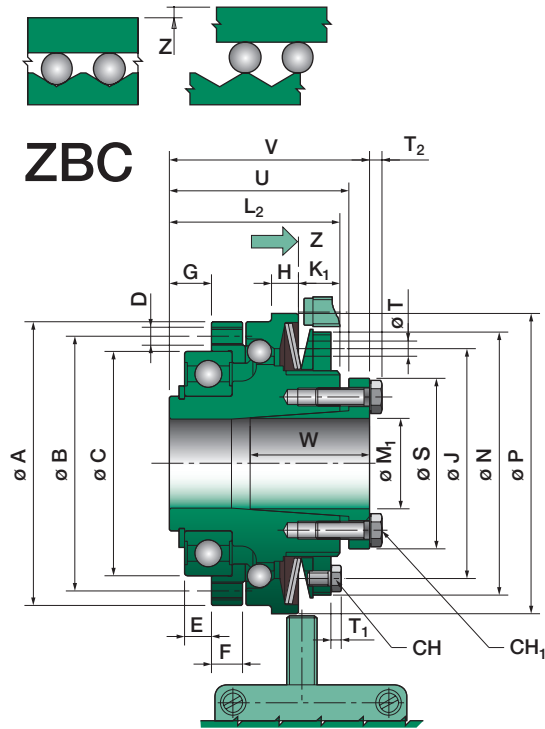
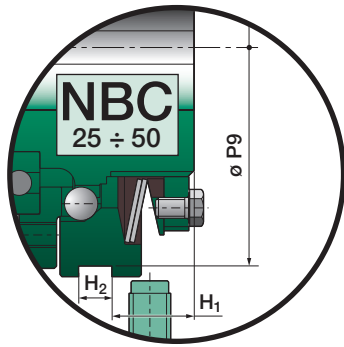
Inertia Moments

Type	H			
	Hub Side	Flange Side	Hub Side	Flange Side
	ZBC		NBC	
kg x cm²				
11	—	—	0.27	0.08
16	—	—	0.54	0.2
20	—	—	1.8	0.6
25	2.15	0.945	4.6	1.8
30	5.30	2.351	11.8	3.9
40	13.68	6.446	27	7.7
50	27.62	13.071	61.5	17.3
60	66.45	26.523	—	—

*Corresponding to min. bore

ZBC-NBC Zero Backlash Torque Limiters – Type J

Basic Form with Clamping Elements



ZBC Dimensions

Size	Overall Dimensions																									
	A	B	C ^{NS}	D	E	F	G	H	K ₁	J	L ₂	M ₁		N	P	S	T	T ₁	T ₂	CH	CH ₁	U	V	W	Z	
												Min	Max													
25	65	56	47	8xM4	5	7.5	8	7	12	54.5	40	10	20	63	70	40.5	42	5	2.8	2.8	7	7	42	47	26	1.2
30	80	71	62	8xM5	7	8	11	8	12	69	46	15	30	77	85	57	5	2.8	4	7	10	49	56	31	1.5	
40	95	85	75	8xM6	9	10.5	14	9	14	77	57	19	30	88	100	57	64	5	3.5	4	8	10	60	67	40	1.8
50	110	100	90	8xM6	10	12	16	10	16	87.5	63	32	50	100	115	73.5	64	6	4	4	10	10	66.5	73	29	2.0
60	130	116	100	8xM8	10	12	18	12	21	106	75	32	50	122	135	73.5	89	7	4	4	10	10	78.5	85	29	2.2
												55	60										78	86	45.5	

*d max with keyway seat according to DIN 6885/3

NBC Dimensions

Size	Overall Dimensions																										
	A	B	C ^{NS}	D	E	F	G	H	H ₁	H ₂	K ₁ , K ₂	J	L ₂	M ₁		N	P	P ₉	S	T	T ₁	T ₂	CH	CH ₁	V	W	Z
														Min	Max												
11	40	35	30	6xM3	2	5	4.5	6	—	—	7	32	24	6	12	39.5	45	—	25	4	2.1	2.1	5.5	5.5	29	13	0.8
16	47	42	37	6xM3	2	6	5	8	—	—	9.5	36.5	29	8	16	43	50	—	29.5	4	2.1	2.1	5.5	5.5	34	19	1
20	60	53	47	6xM4	3	7	6	9	—	—	9.5	36.5	33	9	16	43	65	—	29.5	4	2.1	2.1	5.5	5.5	38	19	1.2
25	77	69	62	6xM5	4	7.5	8	—	14.9	7.5	10.2	54.5	41	10	20	63	80	75	40.5	5	2.8	2.8	7	7	46	26	1.2
30	90	80	68	6xM6	5	8	10	—	17.4	7.5	11	69	47	15	30	77	95	90	57	5	2.8	4	7	10	57	31	1.5
40	106	90	80	6xM6	5	9	10	—	20	8	12.6	77	52	19	30	88	110	105	57	5	3.5	4	8	10	62	40	1.8
50	125	112	100	6xM8	5	11	10	—	23.5	9	14.7	87.5	59	32	50	100	130	125	73.5	6	4	4	10	10	69	29	2.0

*d max with keyway seat according to DIN 6885/3

How to order:









ZBC Quickquard Type R – Size 50 – Springs LL – Ø40 – Ø 40
Order Code: R50LL40B+K

NBC Sychron Type J – Size 16 – Springs L – Ø40 – Ø 40
Order Code: J16L14B+K

ZBC-NBC Zero Backlash Torque Limiters – Type J

Basic Form with Clamping Elements

Arrangement Possibilities

Arrangement Possibilities				ZBC				NBC					
Range	Type			Size	Disc Springs		Torque Limiter Side (mm)		Size	Disc Springs		Min/Max Bore (mm)	
	Pre-Bored	with Cone Clamping Element	Form		Code	Layout	Min	Max		Code	Layout	Min	Max
ZBC Quick Guard	H	J	Basic Type	25	S-Light	1 	8	20	11	S-Light	1 	6	11
ZBC Synchronous	K	L	for Large Drives	30			10	30***	16			8	16
NBC* Quick Guard				40	M-Medium	2 	12	35***	20	M-Medium	2 	9	20
NBC* Synchronous	M**	N**-P** R**	with Coupling	50	LL-Heavy	4 	16	45***	25	LL-Heavy	4 	8	20
				60			22	50	30	L-Heavy	3 	10	30***
									40	LL-Heavy	4 	12	35***
									50			16	45***

Stop Switch

Stop Switch	
Type	Description
A	Mechanical
B	Proximity sensor
C	Proximity sensor ext. transmitt

*Only in the form H-K-J-L

** Only in the range ZBC

*** d max with keyway seat according to DIN 6885/3

Inertia Moments

Type	J			
	Hub Side	Flange Side	Hub Side	Flange Side
	ZBC		NBC	
kg x cm ²				
11	—	—	0.25	0.08
16	—	—	0.51	0.2
20	—	—	1.7	0.6
25	2.22	0.945	4.6	1.8
30	5.58	2.351	11.5	3.9
40	14.58	6.446	26.3	7.7
50	29.88	13.071	59.5	17.3
60	72.01	26.523	—	—

*Corresponding to min. bore

Technical Characteristics

ZBC																	NBC						
Disengagement Torque (Nm)				Coupling Type													Disengagement Torque (Nm)				Max Speed		
Size	Disc Springs			Size	Couplings Nominal Torque			Misalignments							Max Speed	Disc Springs							
	S	M	LL		M-N	P-R 92 Shore A	P-R 98 Shore A	M-N			P-R 92 Shore A		P-R 98 Shore A			S	M	L	LL				
	Nm	Nm	Nm		Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	n/1'		n/1'							
25	3-14	6-28	13-56	53	70	70	120	0.4	—	1	1.4	0.14	1	1.4	0.10	0.90	4000	11	0.65-3	1.3-6	2-9	2.6-12	4000
30	9-35	18-70	40-140	72	180	190	320	0.5	—	1	1.5	0.15	1	1.5	0.11	0.90	3000	16	2-5	4-10	6-15	8-20	4000
40	19-65	38-130	78-260	72-89	180-360	380	650	0.5-0.6	—	1	1.8	0.17	1	1.8	0.12	0.90	2500	20	4-10	8-20	12-30	16-40	4000
50	35-110	80-220	160-440	89	430	530	900	0.6	—	1	2.0	0.19	1	2.0	0.14	0.90	2000	25	4-14	8-28	12-42	16-56	4000
60	80-185	160-370	320-740	118	790	620	1050	0.8	—	1	2.1	0.23	1	2.1	0.16	0.90	1200	30	9-35	18-70	27-105	40-140	3000
																		40	19-65	38-130	57-195	78-260	2500
																		50	35-110	80-220	120-330	160-440	2000

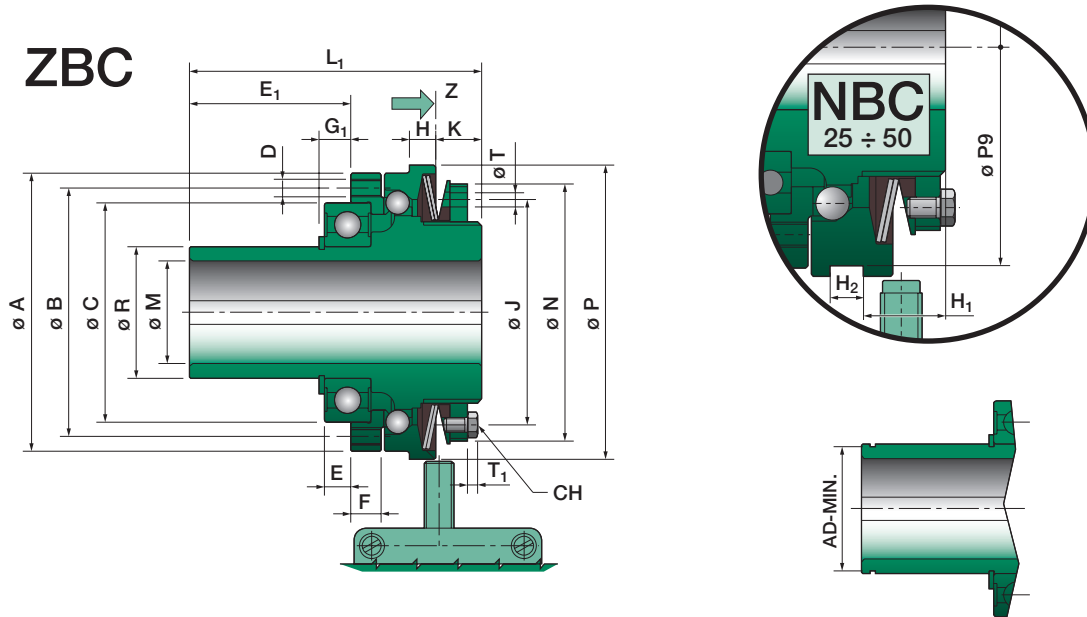
Available Bore Sizes

Type J-L	Available Bore Sizes																							Ts Nm						
ZBC	NBC	6	8	9	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60	Ts Nm	
—	11	13	18	20	23	25	28																						2.2*	
—	16		28	30	34	37	41	48	51	54																			1.7*	
—	20		28	30	34	37	41	48	51	54																			1.7*	
25	25				65	70	75	90	95	100	115	120	130	140	150	160													3	
30	30									95	100	115	160	180	190	210	220	240	260										10	
40	40											240	260	290	310	320	360	390											10	
40	40																		440	480	520	550							5.9	
50	50																			620	680	730	770	810	870	930	970		10	
60	—																			680	700	740	780	820	870	930	970	1070	1160	10

Ts (Nm) Clamping element screws tightening torque
* Screws DIN 912 - 12.9

ZBC-NBC Zero Backlash Torque Limiters – Type K

For Large Drives, Pilot Bored



ZBC Dimensions

Size	Overall Dimensions																						
	A	B	C ⁵	D	E	E ₁	F	G ₁	H	K	J	L ₁	M		N	P	R ⁶	T	T ₁	CH	Z		
	Min		Max																				
25	65	56	47	8xM4	5	33	7.5	6.5	7	12	54.5	65	8	20	63	70	30	5	2.8	7	1.2		
30	80	71	62	8xM5	7	43	8	8.75	8	14	69	80	10	30*	77	85	40	5	2.8	7	1.5		
40	95	85	75	8xM6	9	55	10.5	11.5	9	16	77	100	14	35*	88	100	45	5	3.5	8	1.8		
50	110	100	90	8xM6	10	67	12	13	10	17	87.5	115	18	45*	100	115	55	6	4	10	2.0		
60	130	116	100	8xM8	10	73	12	14	12	21	106	130	24	50	122	135	65	7	4	10	2.2		

*d max with keyway seat according to DIN 6885/3

NBC Dimensions

Size	Overall Dimensions																							
	A	B	C ⁵	D	E	E ₁	F	G ₁	H	H ₁	H ₂	K, K ₁	J	L ₁	M		N	P	P ₉	R ⁶	T	T ₁	CH	Z
	Min		Max																					
11	40	35	30	6xM3	2	20.5	5	3	6	—	—	7	32	40	6	11	39.5	45	—	17	4	2.1	5.5	0.8
16	47	42	37	6xM3	2	25	6	5	8	—	—	9.5	36.5	49	8	16*	43	50	—	25	4	2.1	5.5	1
20	60	53	47	6xM4	3	31	7	5	9	—	—	9.5	36.5	58	9	20	43	65	—	30	4	2.1	5.5	1.2
25	77	69	62	6xM5	4	35	7.5	5.5	—	14.9	7.5	10.2	54.5	68	12	20	63	80	75	35	5	2.8	7	1.2
30	90	80	68	6xM6	5	40	8	6.5	—	17.4	7.5	11	69	77	15	25	77	95	90	40	5	2.8	7	1.5
40	106	90	80	6xM6	5	48	9	7	—	20	8	12.6	77	90	22	35*	88	110	105	50	5	3.5	8	1.8
50	125	112	100	6xM8	5	60	11	7.5	—	23.5	9	14.7	87.5	109	32	45	100	130	125	65	6	4	10	2.0

*d max with keyway seat according to DIN 6885/3

How to order:








ZBC Quickquard Type R – Size 50 – Springs LL – Ø40 – Ø 40
Order Code: R50LL40B+K

NBC Sychron Type J – Size 16 – Springs L – Ø40 – Ø 40
Order Code: J16L14B+K

ZBC-NBC Zero Backlash Torque Limiters – Type K

For Large Drives, Pilot Bored

Arrangement Possibilities

Arrangement Possibilities				ZBC				NBC					
Range	Type			Size	Disc Springs		Torque Limiter Side (mm)		Size	Disc Springs		Min/Max Bore (mm)	
	Pre-Bored	with Cone Clamping Element	Form		Code	Layout	Min	Max		Code	Layout	Min	Max
ZBC Quick Guard	H	J	Basic Type	25	S-Light	1 	8	20	11	S-Light	1 	6	11
ZBC Synchronous	K	L	for Large Drives	30			10	30***	16			8	16
NBC* Quick Guard				40	M-Medium	2 	12	35***	20	M-Medium	2 	9	20
NBC* Synchronous	M**	N**-P**-R**	with Coupling	50	LL-Heavy	4 	16	45***	25	L-Heavy	3 	8	20
				60			22	50	30	LL-Heavy	4 	10	30***
									40			12	35***
									50			16	45***

Stop Switch

Stop Switch	
Type	Description
A	Mechanical
B	Proximity sensor
C	Proximity sensor ext. transmitt

*Only in the form H-K-J-L

** Only in the range ZBC

*** d max with keyway seat according to DIN 6885/3

Inertia Moments

Type	K			
	Hub Side	Flange Side	Hub Side	Flange Side
	ZBC		NBC	
kg x cm ²				
11	—	—	0.26	0.08
16	—	—	0.55	0.2
20	—	—	1.8	0.6
25	2.29	0.945	4.8	1.8
30	5.90	2.351	12.1	3.9
40	14.75	6.446	27.6	7.7
50	30.33	13.071	65.3	17.3
60	71.94	26.523	—	—

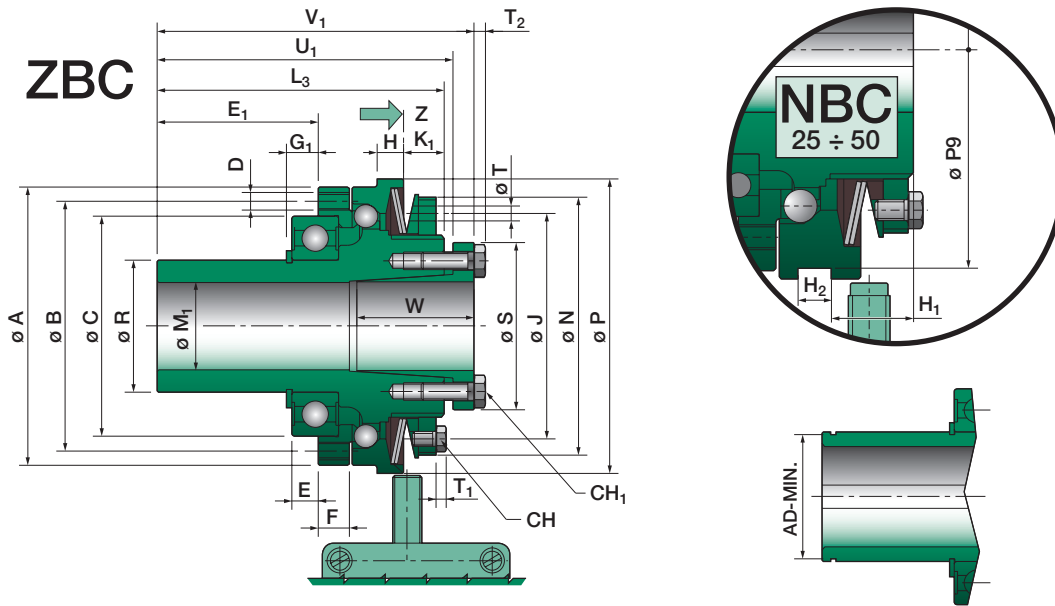
*Corresponding to min. bore

Technical Characteristics

ZBC																	NBC						
Disengagement Torque (Nm)				Coupling Type													Disengagement Torque (Nm)				Max Speed		
Size	Disc Springs			Size	Couplings Nominal Torque			Misalignments							Max Speed	Disc Springs							
	S	M	LL		M-N	P-R 92 Shore A	P-R 98 Shore A	M-N			P-R 92 Shore A			P-R 98 Shore A			S	M	L	LL			
	Nm	Nm	Nm		Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm		Δ rad mm	Δ ang (°)	n/1'	n/1'				
25	3-14	6-28	13-56	53	70	70	120	0.4	—	1	1.4	0.14	1	1.4	0.10	0.90	4000	11	0.65-3	1.3-6	2-9	2.6-12	4000
30	9-35	18-70	40-140	72	180	190	320	0.5	—	1	1.5	0.15	1	1.5	0.11	0.90	3000	16	2-5	4-10	6-15	8-20	4000
40	19-65	38-130	78-260	72-89	180-360	380	650	0.5-0.6	—	1	1.8	0.17	1	1.8	0.12	0.90	2500	20	4-10	8-20	12-30	16-40	4000
50	35-110	80-220	160-440	89	430	530	900	0.6	—	1	2.0	0.19	1	2.0	0.14	0.90	2000	25	4-14	8-28	12-42	16-56	4000
60	80-185	160-370	320-740	118	790	620	1050	0.8	—	1	2.1	0.23	1	2.1	0.16	0.90	1200	30	9-35	18-70	27-105	40-140	3000
																		40	19-65	38-130	57-195	78-260	2500
																		50	35-110	80-220	120-330	160-440	2000

ZBC-NBC Zero Backlash Torque Limiters – Type L

For Large Drives, with Clamped Element



ZBC Dimensions

Size	Overall Dimensions																					
	A	B	C ¹⁵	D	E ₁	G ₁	H	K ₁	J	L ₃	M ₁		N	P	R ¹⁶	S	T	T ₂	U ₁	V ₁	W	
												Min	Max									
25	65	56	47	8xM4	33	6.5	7	12	54.5	65	10 19	20 25	63	70	30	40.5 42	5	2.8	67	72	26	
30	80	71	62	8xM5	43	8.75	8	12	69	78	15	30	77	85	40	57	5	4	81	88	31	
40	95	85	75	8xM6	55	11.5	9	14	77	98	19 32	30 40	88	100	45	57 64	5	4 3.5	101	108	40 31	
50	110	100	90	8xM6	67	13	10	16	87.5	114	32	50	100	115	55	73.5	6	4	117.5	124	29	
60	130	116	100	8xM8	73	14	12	21	106	130	32 55	50 60	122	135	65	73.5 89	7	4	133.5 133	140 141	29 45.5	

*d max with keyway seat according to DIN 6885/3

NBC Dimensions

Size	Overall Dimensions																							
	A	B	C ¹⁵	D	E ₁	G ₁	H	H ₁	H ₂	K, K ₁	J	L ₃	M ₁		N	P	P9	R ¹⁶	S	T	T ₂	V ₁	W	
														Min	Max									
11	40	35	30	6xM3	20.5	3	6	—	—	7	32	40	6	12	39.5	45	—	17	25	4	2.1	45	13	
16	47	42	37	6xM3	25	5	8	—	—	9.5	36.5	49	8	16*	43	50	—	25	29.5	4	2.1	54	19	
20	60	53	47	6xM4	31	5	9	—	—	9.5	36.5	58	9	16	43	65	—	30	29.5	4	2.1	63	19	
25	77	69	62	6xM5	35	5.5	—	14.9	7.5	10.2	54.5	68	10 19	25	63	80	75	35	40.5 42	5	2.8	75	26	
30	90	80	68	6xM6	40	6.5	—	17.4	7.5	11	69	77	15	30	77	95	90	40	57	5	4	87	31	
40	106	90	80	6xM6	48	7	—	20	8	12.6	77	90	19 32	30 40	88	110	105	50	57 64	5	4 3.5	100	40 31	
50	125	112	100	6xM8	60	7.5	—	23.5	9	14.7	87.5	109	32	50	100	130	125	65	73.5	6	4	119	29	

*d max with keyway seat according to DIN 6885/3

How to order:

ZBC Quickquard Type R – Size 50 – Springs LL – Ø40 – Ø 40
Order Code: R50LL40B+K

NBC Synchron Type J – Size 16 – Springs L – Ø40 – Ø 40
Order Code: J16L14B+K

ZBC-NBC Zero Backlash Torque Limiters – Type L

For Large Drives, with Clamped Element

Arrangement Possibilities

Arrangement Possibilities				ZBC				NBC					
Range	Type			Size	Disc Springs		Torque Limiter Side (mm)		Size	Disc Springs		Min/Max Bore (mm)	
	Pre-Bored	with Cone Clamping Element	Form		Code	Layout	Min	Max		Code	Layout	Min	Max
ZBC Quick Guard	H	J	Basic Type	25	S-Light	1	8	20	11	S-Light	1	6	11
ZBC Synchronous	K	L	for Large Drives	30			10	30***	16			8	16
NBC* Quick Guard				40	M-Medium	2	12	35***	20	M-Medium	2	9	20
NBC* Synchronous	M**	N**-P**-R**	with Coupling	50	LL-Heavy	4	16	45***	25	L-Heavy	3	8	20
				60			22	50	30	LL-Heavy	4	10	30***
									40			12	35***
									50			16	45***

Stop Switch

Stop Switch	
Type	Description
A	Mechanical
B	Proximity sensor
C	Proximity sensor ext. transmitt

*Only in the form H-K-J-L

** Only in the range ZBC

*** d max with keyway seat according to DIN 6885/3

Inertia Moments

Type	L			
	Hub Side	Flange Side	Hub Side	Flange Side
	ZBC		NBC	
kg x cm ²				
11	—	—	0.28	0.08
16	—	—	0.58	0.2
20	—	—	1.8	0.6
25	2.36	0.945	4.9	1.8
30	6.17	2.351	12.5	3.9
40	15.66	6.446	28.4	7.7
50	32.60	13.071	67.1	17.3
60	77.18	26.523	—	—

*Corresponding to min. bore

Technical Characteristics

ZBC																NBC							
Disengagement Torque (Nm)				Coupling Type												Disengagement Torque (Nm)				Max Speed			
Size	Disc Springs			Size	Couplings Nominal Torque			Misalignments									Max Speed						
	S	M	LL		M-N	P-R 92 Shore A	P-R 98 Shore A	M-N			P-R 92 Shore A			P-R 98 Shore A									
	Nm	Nm	Nm		Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	n/1'	S	M		L	LL	n/1'			
25	3-14	6-28	13-56	53	70	70	120	0.4	—	1	1.4	0.14	1	1.4	0.10	0.90	4000	11	0.65-3	1.3-6	2-9	2.6-12	4000
30	9-35	18-70	40-140	72	180	190	320	0.5	—	1	1.5	0.15	1	1.5	0.11	0.90	3000	16	2-5	4-10	6-15	8-20	4000
40	19-65	38-130	78-260	72-89	180-360	380	650	0.5-0.6	—	1	1.8	0.17	1	1.8	0.12	0.90	2500	20	4-10	8-20	12-30	16-40	4000
50	35-110	80-220	160-440	89	430	530	900	0.6	—	1	2.0	0.19	1	2.0	0.14	0.90	2000	25	4-14	8-28	12-42	16-56	4000
60	80-185	160-370	320-740	118	790	620	1050	0.8	—	1	2.1	0.23	1	2.1	0.16	0.90	1200	30	9-35	18-70	27-105	40-140	3000
																		40	19-65	38-130	57-195	78-260	2500
																		50	35-110	80-220	120-330	160-440	2000

Available Bore Sizes

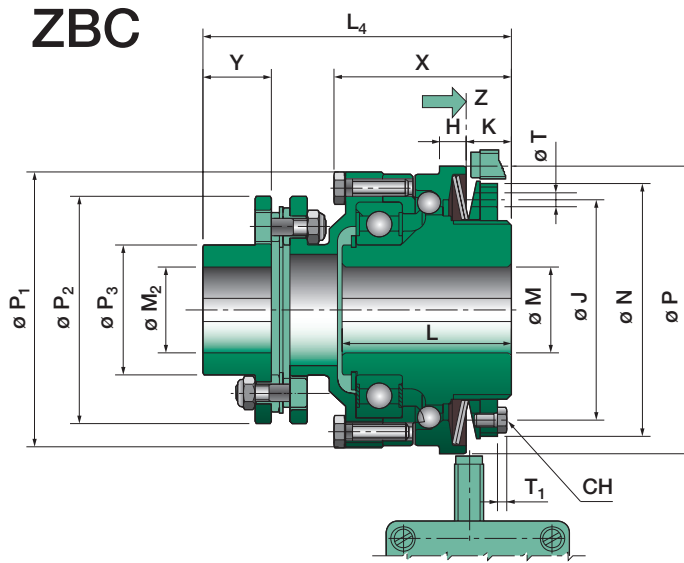
Type J-L	Available Bore Sizes																								Ts Nm					
ZBC	NBC	6	8	9	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60		
Size																														
—	11	13	18	20	23	25	28																						2.2*	
—	16		28	30	34	37	41	48	51	54																			1.7*	
—	20		28	30	34	37	41	48	51	54																			1.7*	
25	25				65	70	75	90	95	100	115	120	130	140	150	160													3	
30	30								95	100	115	160	180	190	210	220	240	260												10
40	40											240	260	290	310	320	360	390												10
40	40																		440	480	520	550								5.9
50	50																			620	680	730	770	810	870	930	970			10
60	—																			680	700	740	780	820	870	930	970	1070	1160	10

Ts (Nm) Clamping element screws tightening torque

* Screws DIN 912 - 12.9

ZBC Zero Backlash Torque Limiters – Type M

with Lamellar Coupling, Pilot Bored



Dimensions

Size	Overall Dimensions																			
	H	K	J	L	L ₄	M		M ₂		N	P	P ₁	P ₂	P ₃	T	T ₁	CH	X	Y	Z
						Min	Max	Min	Max											
25-53	7	12	54.5	40	87.5	8	20	8	25*	63	70	65	53	32.5	5	2.8	7	41.5	24.5	1.2
30-72	8	14	69	48	113	10	30*	11	35	77	85	80	72	47	5	2.8	7	50	39.5	1.5
40-72	9	16	77	59	126.5	14	35*	11	35	88	100	97	72	47	5	3.5	8	62	39.5	1.8
40-89	9	16	77	59	142.5	14	35*	15	50*	88	100	97	89	62.5	5	3.5	8	62	45	1.8
50-89	10	17	87.5	64	145	18	45*	15	50*	100	115	111	89	62.5	6	4	10	66.5	45	2.0
60-118	12	21	106	75	172.5	24	50	16	65	122	135	131	118	82	7	4	10	76.5	55	2.2

*d max with keyway seat according to DIN 6885/3

Available Bore Sizes

ZBC Type N Torque Limiter Side	Available Bore Sizes/Transmissible Torque (mm/Nm)																					Ts Nm				
	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48		50	55	60	
25	65	70	75	90	95	100	115	120	130	140	150	160														3
30					120	130	150	160	180	190	210	220	240	260												10
40								240	260	290	310	320	360	390												10
40															440	480	520	550								5.9
50															620	680	730	770	810	870	930	970				10
60															680	700	740	780	820	870	930	970	1070	1160		10

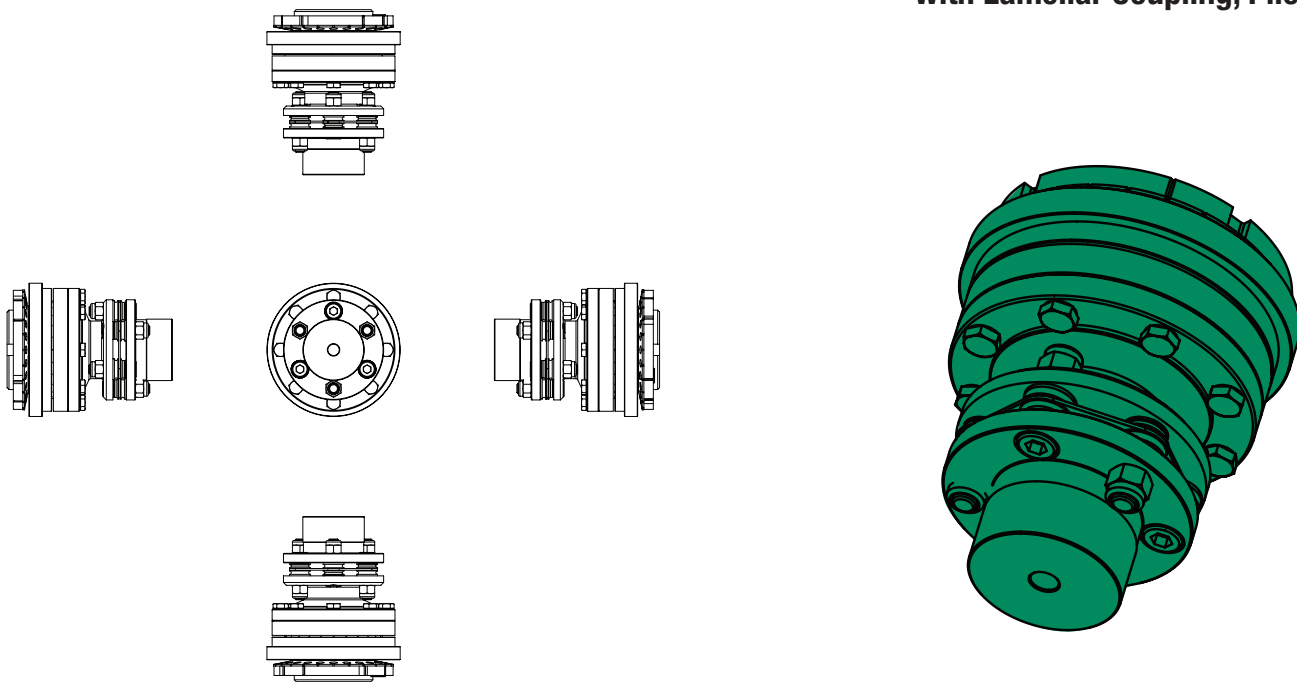
ZBC Type N Coupling Side	Available Bore Sizes/Transmissible Torque Coupling Side (mm/Nm)																					Ts Nm	Tc Nm				
	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50			55	60		
25-53	80	87	102	108	116	130	138	145																		5	6
30-72				146	155	175	210	220	242	265	276	309	331													17	8
40-72							210	220	242	265	276	309	331													17	8
40-89										529	552	618	662	706	772	839	883	926								17	14
50-89										529	552	618	662	706	772	839	883	926								17	14
60-118														706	772	839	883	926	1026	1094	1140	1250	1370			17	31

*Ts (Nm) Clamping element screws tightening torque

**Tc (Nm) Coupling screws tightening torque

ZBC Zero Backlash Torque Limiters – Type M

with Lamellar Coupling, Pilot Bored



Arrangement Possibilities

Arrangement Possibilities				ZBC																
Range	Type			Size	Disc Springs		Torque Limiter Side (mm)						Coupling Side (mm)							
	Pre-Bored	with Cone Clamping Element	Form		Code	Layout	H-K-M-T		J-L-N-P-R		M		N		P		R		T	
							Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
ZBC Quick Guard	H	J	Basic Type	25	S-Light	1	8	20	10	25	8	25***	10	20	10	28	15	28	8	28
ZBC Synchronous	K	L	for Large Drives	30	M-Medium	2	10	30***	15	30	11	35	19	30	19	38	19	38	10	38
NBC* Quick Guard	M**	N**-P***-R**	with Coupling	40			12	35***	19	40	11	50***	15	42	20	45	20	45	12	45
NBC* Synchronous				50			16	45***	32	50	15	50***	24	42	28	48	28	50	14	55
				60	LL-Heavy	4	22	50	32	60	16	65	32	60	25	55	30	55	15	60

*Only in the form H-K-J-L

** Only in the range ZBC

*** d max with keyway seat according to DIN 6885/3

Stop Switch

Stop Switch	
Type	Description
A	Mechanical
B	Proximity sensor
C	Proximity sensor ext. transmitt

Technical Characteristics

ZBC																	
Disengagement Torque (Nm)				Coupling Type													
Size	Disc Springs			Size	Couplings Nominal Torque			Misalignments									Max Speed
	S	M	LL		M-N	P-R 92 Shore A	P-R 98 Shore A	M-N			P-R 92 Shore A			P-R 98 Shore A			
								Nm	Nm	Nm	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	
25	3-14	6-28	13-56	53	70	70	120	0.4	—	1	1.4	0.14	1	1.4	0.10	0.90	4000
30	9-35	18-70	40-140	72	180	190	320	0.5	—	1	1.5	0.15	1	1.5	0.11	0.90	3000
40	19-65	38-130	78-260	72-89	180-360	380	650	0.5-0.6	—	1	1.8	0.17	1	1.8	0.12	0.90	2500
50	35-110	80-220	160-440	89	430	530	900	0.6	—	1	2.0	0.19	1	2.0	0.14	0.90	2000
60	80-185	160-370	320-740	118	790	620	1050	0.8	—	1	2.1	0.23	1	2.1	0.16	0.90	1200

Inertia Moment

Type	M	
	Hub Side	Flange Side
	ZBC	
	kg x cm ²	
11	—	—
16	—	—
20	—	—
25	2.15	2.42
30	5.30	6.92
40	13.68	16.55
50	27.62	34.03
60	66.45	43.52

*Corresponding to min. bore

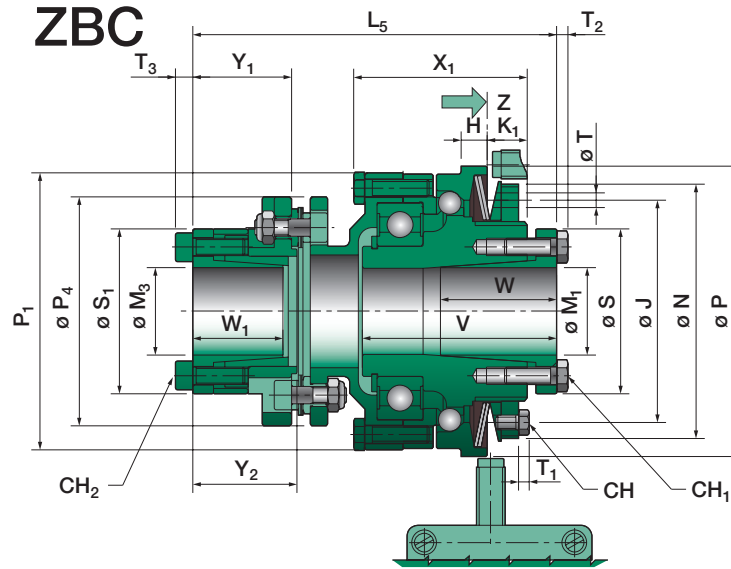
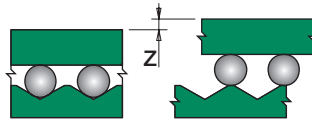
How to order:

ZBC Quickquard Type R – Size 50 – Springs LL – Ø40 – Ø 40 Order Code: R50LL40B+K

NBC Sychron Type J – Size 16 – Springs L – Ø40 – Ø 40 Order Code: J16L14B+K

ZBC Zero Backlash Torque Limiters – Type N

with Lamellar Coupling and Clamping Equipment



Dimensions

Size	Overall Dimensions																										
	H	K ₁	J	L ₅	M ₁		M ₃		N	P	P ₁	P ₄	S	S ₁	T	T ₁	T ₂	T ₃	CH	CH ₁	CH ₂	V	W	W ₁	Y ₁	Y ₂	Z
					Min	Max	Min	Max																			
25-53	7	12	54.5	95.5	10 19	20 25	10	20	63	70	65	53	40.5 42	42	5	2.8	2.8	4	7	7	3	47	26	26.5	25.5	27.5	1.2
30-72	8	12	69	114.5	15	30	19	30	77	85	80	72	57	58	5	2.8	4	6	7	10	5	56	31	31	33	—	1.5
40-72	9	14	77	128	19	40	19	30	88	100	97	72	57	58	5	3.5	4	6	8	10	5	67	40	31	33	—	1.8
40-89	9	14	77	150	19	40	24	42	88	100	97	89	64	72	5	3.5	3.5	6	8	8	5	67	31	45	44.5	45.5	1.8
50-89	10	16	87.5	153.5	32	50	24	42	100	115	111	89	73.5	72	6	4	4	6	10	10	5	73	29	45	44.5	45.5	2.0
60-118	12	21	106	162.5 172.5	32 55	50 60	32 55	50 60	122	135	131	118	73.5 89	79 92	7	4	4	6	10	10	5	85 86	29 44	29 44	35 44	— 46	2.2

*d max with keyway seat according to DIN 6885/3

Available Bore Sizes

ZBC Type N Torque Limiter Side	Available Bore Sizes/Transmissible Torque (mm/Nm)																							Ts Nm			
	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55		60		
Size	25	65	70	75	90	95	100	115	120	130	140	150	160													3	
30					120	130	150	160	180	190	210	220	240	260													10
40								240	260	290	310	320	360	390													10
40															440	480	520	550									5.9
50															620	680	730	770	810	870	930	970					10
60															680	700	740	780	820	870	930	970	1070	1160			10

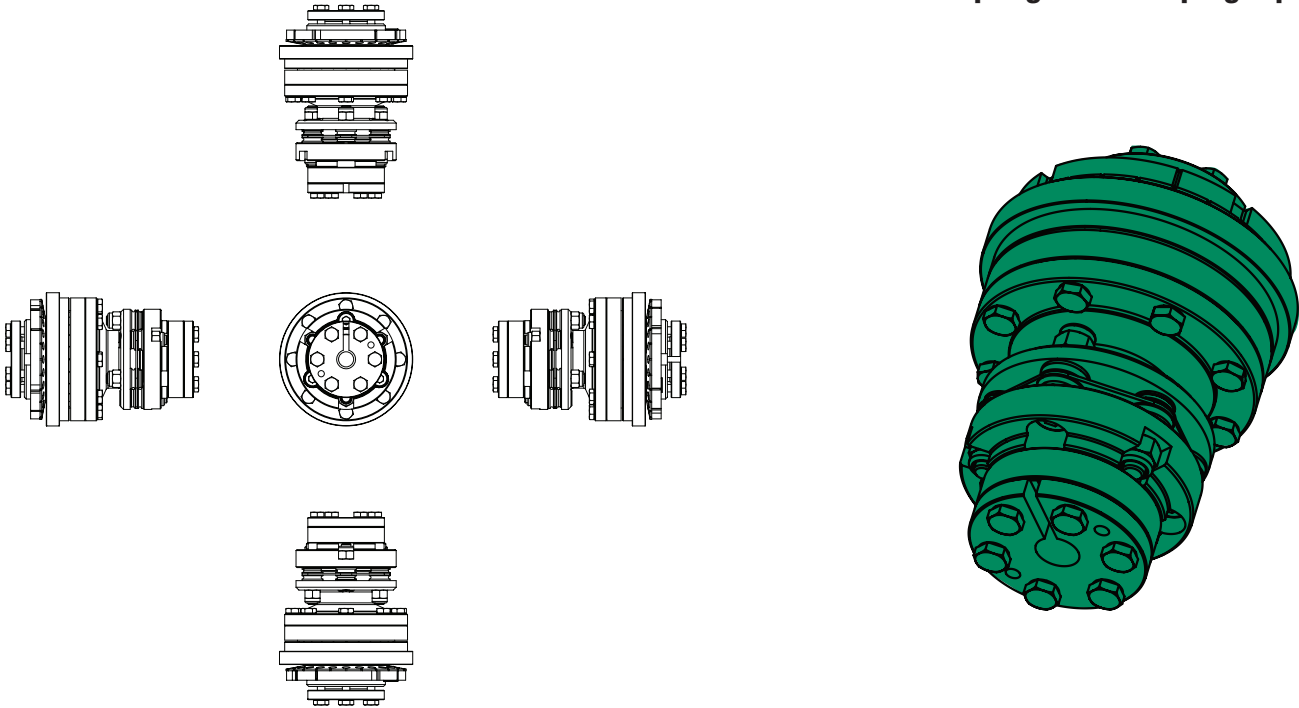
ZBC Type N Coupling Side	Available Bore Sizes/Transmissible Torque Coupling Side (mm/Nm)																							Ts Nm	Tc Nm			
	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55	60					
Size	25-53	80	87	102	108	116	130	138	145																	5	6	
30-72				146	155	175	210	220	242	265	276	309	331														17	8
40-72							210	220	242	265	276	309	331														17	8
40-89										529	552	618	662	706	772	839	883	926									17	14
50-89										529	552	618	662	706	772	839	883	926									17	14
60-118														706	772	839	883	926	1026	1094	1140	1250	1370				17	31

*Ts (Nm) Clamping element screws tightening torque

**Tc (Nm) Coupling screws tightening torque

ZBC Zero Backlash Torque Limiters – Type N

with Lamellar Coupling and Clamping Equipment



Arrangement Possibilities

Arrangement Possibilities				ZBC																
Range	Type			Size	Disc Springs		Torque Limiter Side (mm)						Coupling Side (mm)							
	Pre-Bored	with Cone Clamping Element	Form		Code	Layout	H-K-M-T		J-L-N-P-R		M		N		P		R		T	
							Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
ZBC Quick Guard	H	J	Basic Type	25	S-Light	1	8	20	10	25	8	25***	10	20	10	28	15	28	8	28
ZBC Synchronous	K	L	for Large Drives	30	M-Medium	2	10	30***	15	30	11	35	19	30	19	38	19	38	10	38
NBC* Quick Guard	M**	N**-P**-R**	with Coupling	40			12	35***	19	40	11	50***	15	42	20	45	20	45	12	45
NBC* Synchronous				50	16	45***	32	50	15	50***	24	42	28	48	28	50	14	55		
				60	LL-Heavy	4	22	50	32	60	16	65	32	60	25	55	30	55	15	60

*Only in the form H-K-J-L

** Only in the range ZBC

*** d max with keyway seat according to DIN 6885/3

Stop Switch

Stop Switch	
Type	Description
A	Mechanical
B	Proximity sensor
C	Proximity sensor ext. transmit

Technical Characteristics

ZBC																	
Disengagement Torque (Nm)				Coupling Type													
Size	Disc Springs			Size	Couplings Nominal Torque			Misalignments									Max Speed
	S	M	LL		M-N	P-R 92 Shore A	P-R 98 Shore A	M-N			P-R 92 Shore A			P-R 98 Shore A			
					Nm	Nm	Nm	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	
25	3-14	6-28	13-56	53	70	70	120	0.4	—	1	1.4	0.14	1	1.4	0.10	0.90	4000
30	9-35	18-70	40-140	72	180	190	320	0.5	—	1	1.5	0.15	1	1.5	0.11	0.90	3000
40	19-65	38-130	78-260	72-89	180-360	380	650	0.5-0.6	—	1	1.8	0.17	1	1.8	0.12	0.90	2500
50	35-110	80-220	160-440	89	430	530	900	0.6	—	1	2.0	0.19	1	2.0	0.14	0.90	2000
60	80-185	160-370	320-740	118	790	620	1050	0.8	—	1	2.1	0.23	1	2.1	0.16	0.90	1200

Inertia Momentum

Type	N	
	Hub Side	Flange Side
	ZBC	
	kg x cm ²	
11	—	—
16	—	—
20	—	—
25	2.22	2.47
30	5.58	7.06
40	14.58	16.88 26.12
50	29.88	34.71
60	72.01	44.39

*Corresponding to min. bore

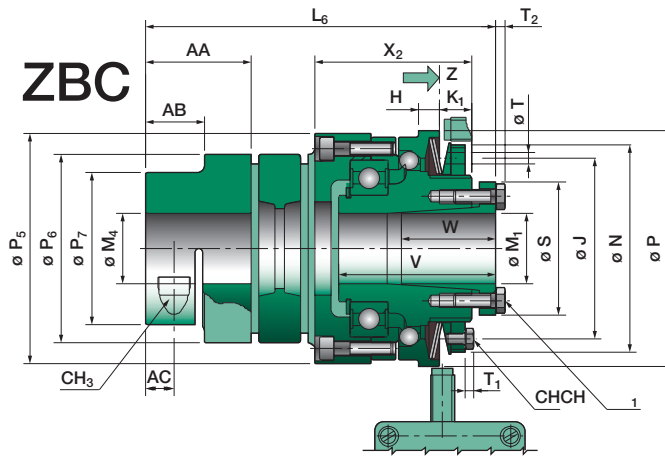
How to order:

ZBC Quickquard Type R – Size 50 – Springs LL – Ø40 – Ø 40 Order Code: R50LL40B+K

NBC Synchron Type J – Size 16 – Springs L – Ø40 – Ø 40 Order Code: J16L14B+K

ZBC Zero Backlash Torque Limiters – Type P

with Flexible Coupling and Clamping Hub



Dimensions

Size	Overall Dimensions																										
	H	K ₁	J	L ₆	M ₁		M ₂		N	P ₅	P ₆	P ₇	S	T	T ₁	T ₂	CH	CH ₁	CH ₃	V	W	X ₂	Z	AA	AB	AC	
					Min	Max	Min	Max																			
25	7	12	54.5	102	10	20	10	28	63	70	55	—	40.5	42	5	2.8	2.8	7	7	5	47	26	47	1.2	30	—	10.5
30	8	12	69	119.5	15	30	14	38	77	85	65	—	57	5	2.8	4	7	10	6	56	31	54.5	1.5	35	—	11.5	
40	9	14	77	146	19	30	15	45	88	100	80	—	57	5	3.5	4	8	10	6	67	40	67	1.8	45	—	15.5	
50	10	16	87.5	159	32	50	20	48	100	115	95	85	73.5	6	4	4	10	10	8	73	29	73	2	50	28	18	
60	12	21	106	181	32	50	25	55	122	135	105	95	73.5	7	4	4	10	10	10	85	29	87	2.2	56	32	21	
				182	55	60							89							86	45.5						

Available Bore Sizes

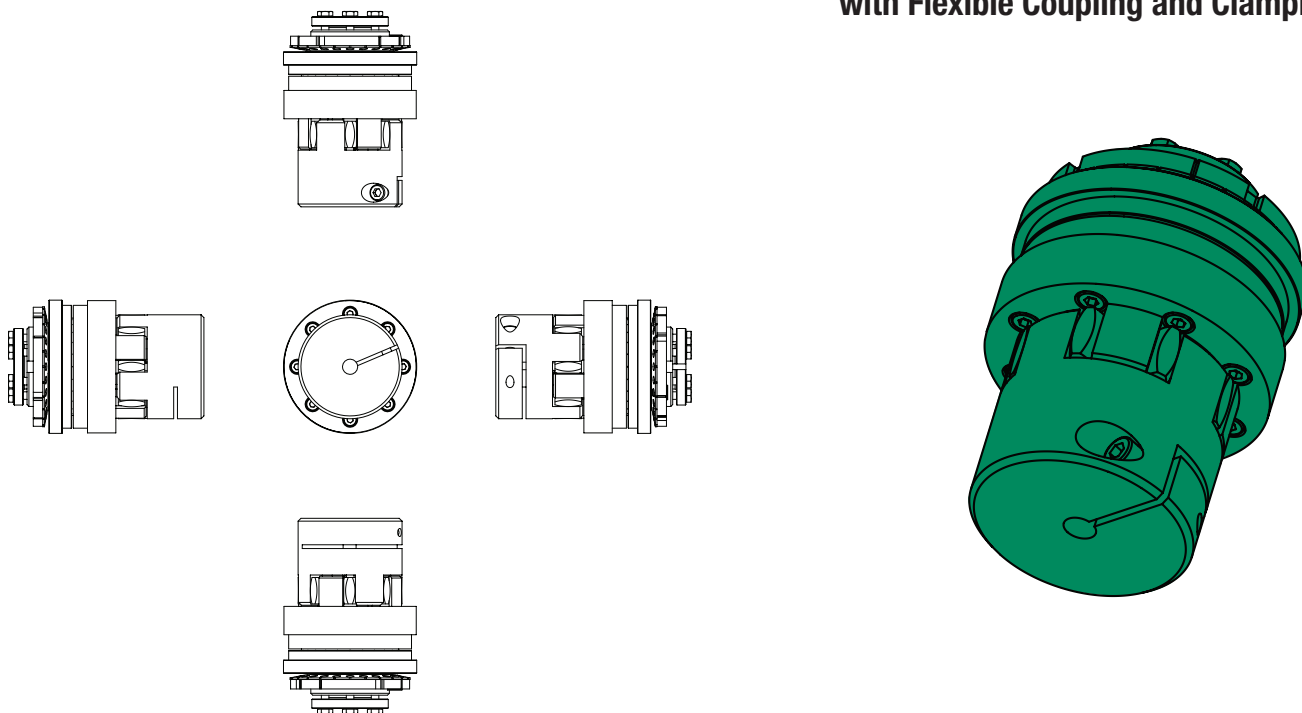
ZBC Type P-R Torque Limiter Side	Available Bore Sizes/Transmissible Torque (mm/Nm)																							Ts Nm					
	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55		60				
	Size																												
25	65	70	75	90	95	100	115	120	130	140	150	160												3					
30					120	130	150	160	180	190	210	220	240	260												10			
40							240	260	290	310	320	360	390												10				
40													440	480	520	550												5.9	
50															620	680	730	770	810	870	930	970						10	
60																	680	700	740	780	820	870	930	970	1070	1160			10

ZBC Type P Coupling Side	Available Bore Sizes/Transmissible Torque Coupling Side (mm/Nm)																							Ts Nm				
	8	10	11	14	15	16	19	20	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65					
	Size																											
25			34	35	36	38	39	39	41	43	45	46												10.5				
30					80	81	81	85	87	91	92	97	99	102	105	109												25
40							92	94	98	99	104	105	109	112	113	118	122	123	126	130						25		
50									232	244	246	255	260	266	274	283	288	294	301	309						69		
60											393	405	413	421	434	445	454	462	473	486	494	514			120			

*Ts (Nm) Clamping hub screw tightening torque

ZBC Zero Backlash Torque Limiters – Type P

with Flexible Coupling and Clamping Hub



Arrangement Possibilities

Arrangement Possibilities				ZBC																
Range	Type			Size	Disc Springs		Torque Limiter Side (mm)						Coupling Side (mm)							
	Pre-Bored	with Cone Clamping Element	Form		Code	Layout	H-K-M-T		J-L-N-P-R		M		N		P		R		T	
							Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
ZBC Quick Guard	H	J	Basic Type	25	S-Light	1	8	20	10	25	8	25***	10	20	10	28	15	28	8	28
ZBC Synchronous	K	L	for Large Drives	30	M-Medium	2	10	30***	15	30	11	35	19	30	19	38	19	38	10	38
NBC* Quick Guard	M**	N**-P***-R**	with Coupling	40			12	35***	19	40	11	50***	15	42	20	45	20	45	12	45
NBC* Synchronous				50	16	45***	32	50	15	50***	24	42	28	48	28	50	14	55		
				60	LL-Heavy	4	22	50	32	60	16	65	32	60	25	55	30	55	15	60

Stop Switch

Type	Description
A	Mechanical
B	Proximity sensor
C	Proximity sensor ext. transmit

*Only in the form H-K-J-L

** Only in the range ZBC

*** d max with keyway seat according to DIN 6885/3

Technical Characteristics

ZBC																	
Disengagement Torque (Nm)				Coupling Type													
Size	Disc Springs			Size	Couplings Nominal Torque			Misalignments									Max Speed
	S	M	LL		M-N	P-R 92 Shore A	P-R 98 Shore A	M-N			P-R 92 Shore A			P-R 98 Shore A			
								Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	
25	3-14	6-28	13-56	53	70	70	120	0.4	—	1	1.4	0.14	1	1.4	0.10	0.90	4000
30	9-35	18-70	40-140	72	180	190	320	0.5	—	1	1.5	0.15	1	1.5	0.11	0.90	3000
40	19-65	38-130	78-260	72-89	180-360	380	650	0.5-0.6	—	1	1.8	0.17	1	1.8	0.12	0.90	2500
50	35-110	80-220	160-440	89	430	530	900	0.6	—	1	2.0	0.19	1	2.0	0.14	0.90	2000
60	80-185	160-370	320-740	118	790	620	1050	0.8	—	1	2.1	0.23	1	2.1	0.16	0.90	1200

Inertia Momentum

Type	P	
	Hub Side	Flange Side
	ZBC	
	kg x cm ²	
11	—	—
16	—	—
20	—	—
25	2.22	4
30	5.58	10
40	14.58	20
50	29.88	50
60	72.01	114

*Corresponding to min. bore

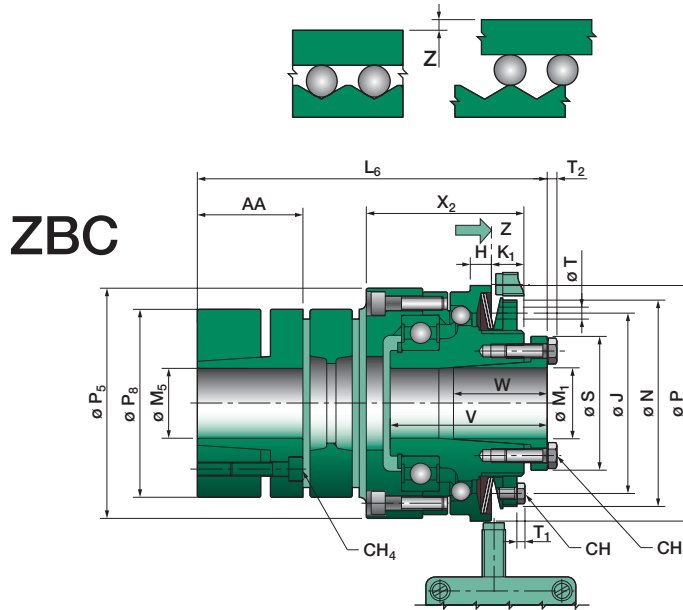
How to order:

ZBC Quickquard Type R – Size 50 – Springs LL – Ø40 – Ø 40 Order Code: R50LL40B+K

NBC Sychron Type J – Size 16 – Springs L – Ø40 – Ø 40 Order Code: J16L14B+K

ZBC Zero Backlash Torque Limiters – Type R

with Flexible Coupling and Shrink Disc



Dimensions

Size	Overall Dimensions																						
	H	K ₁	J	L ₆	M ₁		M ₅		N	P	P ₅	P ₈	S	T ₁	T ₂	CH	CH ₁	CH ₄	V	W	X ₂	Z	AA
					Min	Max	Min	Max															
25	7	12	54.5	102	10	20	15	28	63	70	70	55	40.5	2.8	2.8	7	7	4	47	26	47	1.2	30
30	8	12	69	119.5	15	30	19	38	77	85	85	65	57	2.8	4	7	10	4	56	31	54.5	1.5	35
40	9	14	77	146	19	30	20	45	88	100	100	80	57	3.5	4	8	10	5	67	40	67	1.8	45
50	10	16	87.5	159	32	50	28	50	100	115	115	95	73.5	4	4	10	10	6	73	29	73	2	50
60	12	21	106	181	32	50	30	55	122	135	135	105	73.5	4	4	10	10	8	85	29	87	2.2	56
				182	55	60							89						86	45.5			

Available Bore Sizes

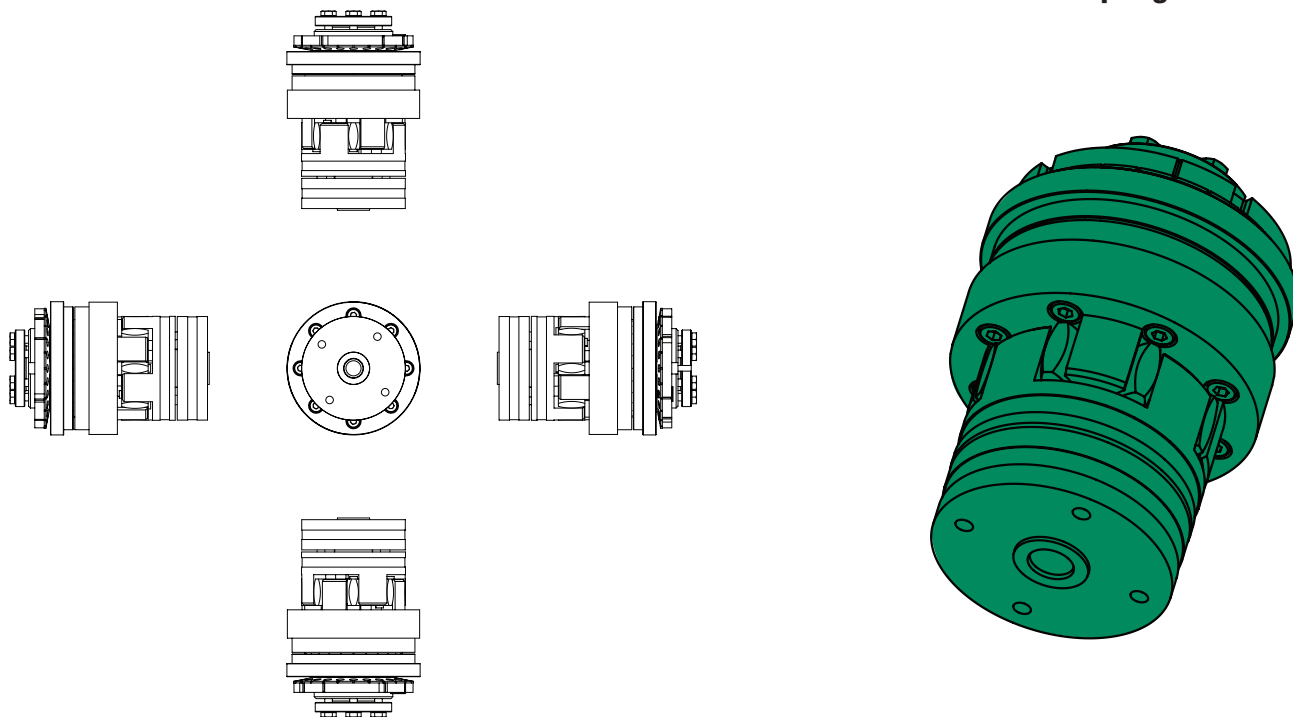
ZBC Type P-R Torque Limiter Side	Available Bore Sizes/Transmissible Torque (mm/Nm)																				Ts Nm						
	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45		48	50	55	60		
25	65	70	75	90	95	100	115	120	130	140	150	160														3	
30					120	130	150	160	180	190	210	220	240	260													10
40								240	260	290	310	320	360	390													10
40															440	480	520	550									5.9
50															620	680	730	770	810	870	930	970					10
60															680	700	740	780	820	870	930	970	1070	1160			10

ZBC Type R Coupling Side	Available Bore Sizes/Transmissible Torque Coupling Side (mm/Nm)																				Ts Nm					
	6	8	10	11	14	15	16	19	20	24	25	28	30	32	35	38	40	42	45	48		50	55			
25				48	67	74	72	90	97	112	120	143														6
30					142	154	189	188	237	250	280	307	310	353	389											6
40									269	337	356	398	436	442	501	533	572	585	644							10
50										399	445	506	470	566	581	630	647	728	836	858						35
60													775	819	955	999	1090	1091	1230	1334	1381	1540				69

*Ts (Nm) Shrink disc screws tightening torque

ZBC Zero Backlash Torque Limiters – Type R

with Flexible Coupling and Shrink Disc



Arrangement Possibilities

Arrangement Possibilities				ZBC																
Range	Type			Size	Disc Springs		Torque Limiter Side (mm)						Coupling Side (mm)							
	Pre-Bored	with Cone Clamping Element	Form		Code	Layout	H-K-M-T		J-L-N-P-R		M		N		P		R		T	
							Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
ZBC Quick Guard	H	J	Basic Type	25	S-Light	1	8	20	10	25	8	25***	10	20	10	28	15	28	8	28
ZBC Synchronous	K	L	for Large Drives	30	M-Medium	2	10	30***	15	30	11	35	19	30	19	38	19	38	10	38
NBC* Quick Guard	M**	N**-P**-R**	with Coupling	40			12	35***	19	40	11	50***	15	42	20	45	20	45	12	45
NBC* Synchronous				50	16	45***	32	50	15	50***	24	42	28	48	28	50	14	55		
				60	LL-Heavy	4	22	50	32	60	16	65	32	60	25	55	30	55	15	60

*Only in the form H-K-J-L

** Only in the range ZBC

*** d max with keyway seat according to DIN 6885/3

Stop Switch

Stop Switch	
Type	Description
A	Mechanical
B	Proximity sensor
C	Proximity sensor ext. transmit

Technical Characteristics

ZBC																		
Disengagement Torque (Nm)				Coupling Type														
Size	Disc Springs			Size	Couplings Nominal Torque			Misalignments									Max Speed	
	S	M	L		M-N	P-R 92 Shore A	P-R 98 Shore A	M-N			P-R 92 Shore A			P-R 98 Shore A				
								Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)		
25	3-14	6-28	13-56	53	70	70	120	0.4	—	1	1.4	0.14	1	1.4	0.10	0.90	4000	
30	9-35	18-70	40-140	72	180	190	320	0.5	—	1	1.5	0.15	1	1.5	0.11	0.90	3000	
40	19-65	38-130	78-260	72-89	180-360	380	650	0.5-0.6	—	1	1.8	0.17	1	1.8	0.12	0.90	2500	
50	35-110	80-220	160-440	89	430	530	900	0.6	—	1	2.0	0.19	1	2.0	0.14	0.90	2000	
60	80-185	160-370	320-740	118	790	620	1050	0.8	—	1	2.1	0.23	1	2.1	0.16	0.90	1200	

Inertia Moment

Type	R	
	Hub Side	Flange Side
	ZBC	
	kg x cm ²	
11	—	—
16	—	—
20	—	—
25	2.22	4
30	5.58	10
40	14.58	20
50	29.88	50
60	72.01	114

*Corresponding to min. bore

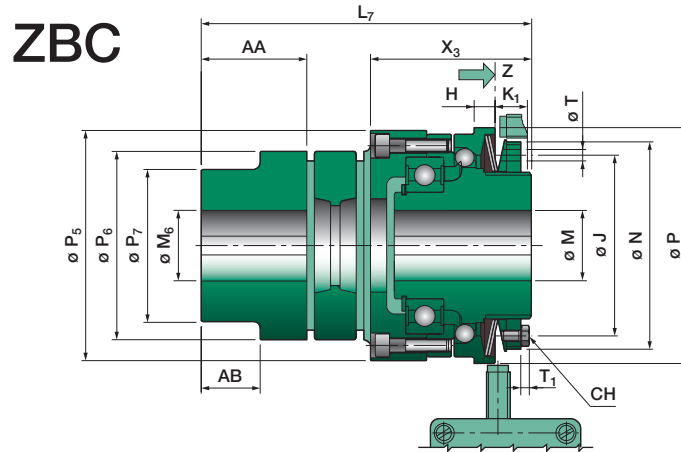
How to order:

ZBC Quickquard Type R – Size 50 – Springs LL – Ø40 – Ø 40 Order Code: R50LL40B+K

NBC Sychron Type J – Size 16 – Springs L – Ø40 – Ø 40 Order Code: J16L14B+K

ZBC Zero Backlash Torque Limiters – Type T

with Flexible Coupling, Pilot Bored



Dimensions

Size	Overall Dimensions																			
	H	K ₁	J	L ₇	M ₁		M ₅		N	P	P ₅	P ₆	P ₇	T	T ₁	CH	X ₃	Z	AA	AB
					Min	Max	Min	Max												
25	7	12	54.5	95	10 19	20 25	8	28	63	70	70	55	—	5	2.8	7	47	1.2	30	—
30	8	12	69	111.5	15	30	10	38	77	85	85	65	—	5	2.8	7	56.5	1.5	35	—
40	9	14	77	138	19 32	30 40	12	45	88	100	100	80	—	5	3.5	8	69	1.8	45	—
50	10	16	87.5	150	32	50	14	55	100	115	115	95	85	6	4	10	74	2	50	28
60	12	21	106	171	32 55	50 60	15	60	122	135	135	105	95	7	4	10	87	2.2	56	32

Available Bore Sizes

ZBC Type P-R Torque Limiter Side	Available Bore Sizes/Transmissible Torque (mm/Nm)																							Ts Nm			
	10	11	12	14	15	16	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	55		60		
25	65	70	75	90	95	100	115	120	130	140	150	160														3	
30					120	130	150	160	180	190	210	220	240	260													10
40								240	260	290	310	320	360	390													10
40															440	480	520	550									5.9
50															620	680	730	770	810	870	930	970					10
60															680	700	740	780	820	870	930	970	1070	1160			10

ZBC Type P Coupling Side	Available Bore Sizes/Transmissible Torque Coupling Side (mm/Nm)																							Ts Nm			
	8	10	11	14	15	16	19	20	24	25	28	30	32	35	38	40	42	45	48	50	55	60	65				
25		34	35	36	38	39	39	41	43	45	46															10.5	
30				80	81	81	85	87	91	92	97	99	102	105	109												25
40					92	94	98	99	104	105	109	112	113	118	122	123	126	130									25
50								232	244	246	255	260	266	274	283	288	294	301	309								69
60									393	405	413	421	434	445	454	462	473	486	494	514							120

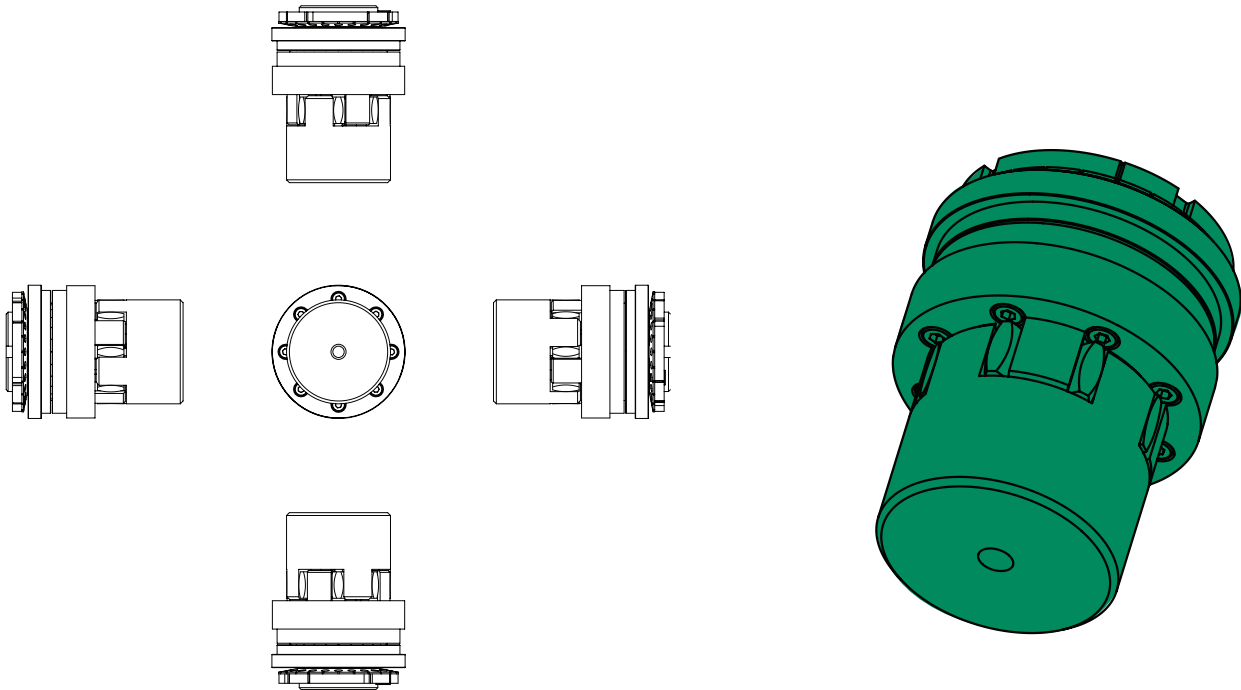
*Ts (Nm) Clamping hub screw tightening torque

ZBC Type R Coupling Side	Available Bore Sizes/Transmissible Torque Coupling Side (mm/Nm)																				Ts Nm						
	6	8	10	11	14	15	16	19	20	24	25	28	30	32	35	38	40	42	45	48		50	55				
25					48	67	74	72	90	97	112	120	143													6	
30						142	154	189	188	237	250	280	307	310	353	389											6
40									269	337	356	398	436	442	501	533	572	585	644								10
50										399	445	506	470	566	581	630	647	728	836	858							35
60											775	819	955	999	1090	1091	1230	1334	1381	1540							69

*Ts (Nm) Shrink disc screws tightening torque

ZBC Zero Backlash Torque Limiters – Type T

with Flexible Coupling, Pilot Bored



Arrangement Possibilities

Arrangement Possibilities				ZBC																
Range	Type			Size	Disc Springs		Torque Limiter Side (mm)				Coupling Side (mm)									
	Pre-Bored	with Cone Clamping Element	Form		Code	Layout	H-K-M-T		J-L-N-P-R		M		N		P		R		T	
							Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
ZBC Quick Guard	H	J	Basic Type	25	S-Light	1	8	20	10	25	8	25***	10	20	10	28	15	28	8	28
ZBC Synchronous	K	L	for Large Drives	30	M-Medium	2	10	30***	15	30	11	35	19	30	19	38	19	38	10	38
NBC* Quick Guard	M**	N**-P***-R**	with Coupling	40			12	35***	19	40	11	50***	15	42	20	45	20	45	12	45
NBC* Synchronous				50	16	45***	32	50	15	50***	24	42	28	48	28	50	14	55		
				60	LL-Heavy	4	22	50	32	60	16	65	32	60	25	55	30	55	15	60

*Only in the form H-K-J-L

** Only in the range ZBC

*** d max with keyway seat according to DIN 6885/3

Stop Switch

Type	Description
A	Mechanical
B	Proximity sensor
C	Proximity sensor ext. transmitt

Technical Characteristics

ZBC																	
Disengagement Torque (Nm)				Coupling Type													
Size	Disc Springs			Size	Couplings Nominal Torque			Misalignments									Max Speed
	S	M	LL		M-N	P-R 92 Shore A	P-R 98 Shore A	M-N			P-R 92 Shore A			P-R 98 Shore A			
								Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	Δ ax mm	Δ rad mm	Δ ang (°)	
25	3-14	6-28	13-56	53	70	70	120	0.4	—	1	1.4	0.14	1	1.4	0.10	0.90	4000
30	9-35	18-70	40-140	72	180	190	320	0.5	—	1	1.5	0.15	1	1.5	0.11	0.90	3000
40	19-65	38-130	78-260	72-89	180-360	380	650	0.5-0.6	—	1	1.8	0.17	1	1.8	0.12	0.90	2500
50	35-110	80-220	160-440	89	430	530	900	0.6	—	1	2.0	0.19	1	2.0	0.14	0.90	2000
60	80-185	160-370	320-740	118	790	620	1050	0.8	—	1	2.1	0.23	1	2.1	0.16	0.90	1200

How to order:

ZBC Quickquard Type R – Size 50 – Springs LL – Ø40 – Ø 40 Order Code: R50LL40B+K

NBC Synchron Type J – Size 16 – Springs L – Ø40 – Ø 40 Order Code: J16L14B+K