

г.Ростов-на-Дону:

ул. Магнитогорская 1Г, к. 20

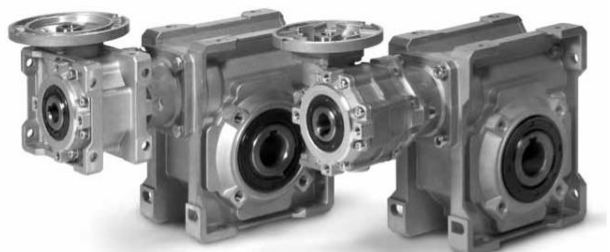


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## Серии ХХ, КХ, КК Червячные двухступенчатые мотор-редукторы.



Червячный двухступенчатый мотор-редуктор **TRAMEC** серии **ХХ, КХ, КК**. Комплектуется электродвигателями мощностью от 0,09 кВт до 1,5 кВт с крутящим моментом от 32 Нм до 1229 Нм. Широкий диапазон передаточных чисел от 150/1 до 10000/1 позволяет получить обороты на выходе от 0,2 до 12,4 об/мин.

Типоразмер	Нм max	Двых. вала мм
СХС30-ХС40	61	18
СХС30-ХС50	105	25
СХС40-ХС75	300	28
СХС40-ХС90	588	35
СХС50-ХС110	885	42

**Технические характеристики:**

**Присоединительные размеры мотор-редукторов**

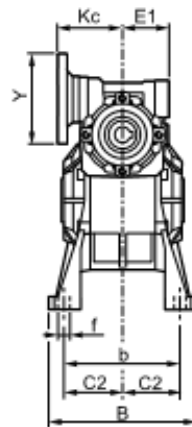
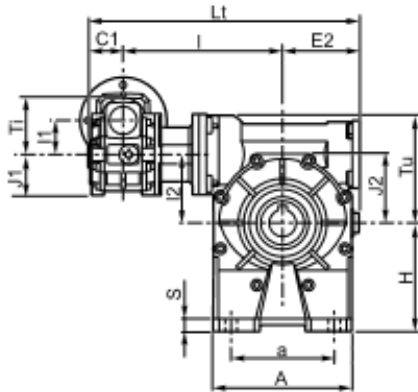
ККС

5.6 Dimensioni

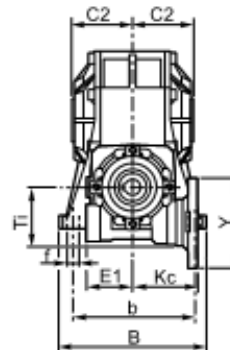
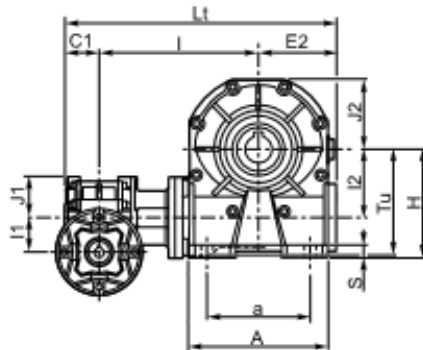
5.6 Dimensions

5.6 Abmessungen

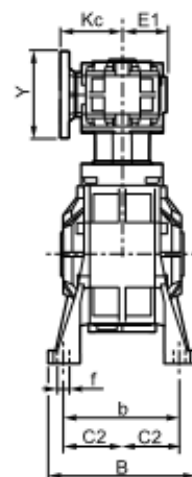
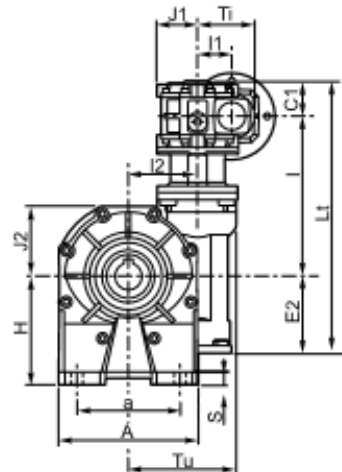
ККС\_A



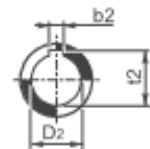
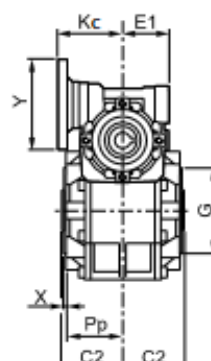
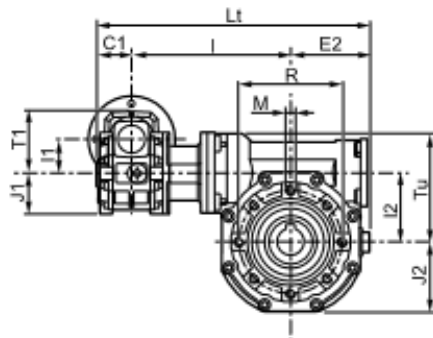
ККС\_B



ККС\_V



ККС\_P



Albero uscita cavo  
Output hollow shaft  
Abtriebs-Hohlwelle

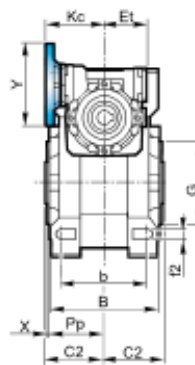
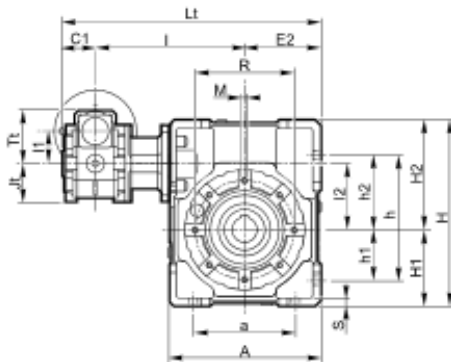
КХС, ХХА, ХХФ, ХХС

5.6 Dimensioni

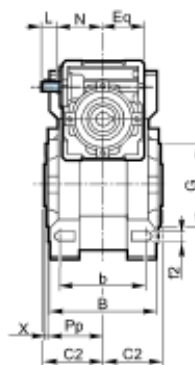
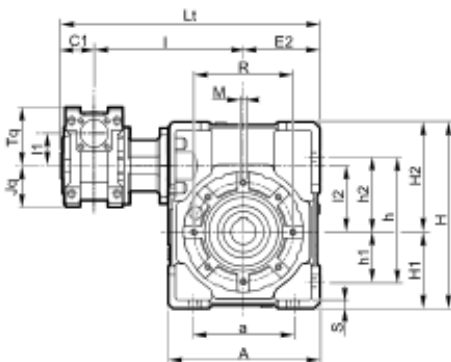
5.6 Dimensions

5.6 Abmessungen

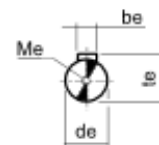
**КХС**



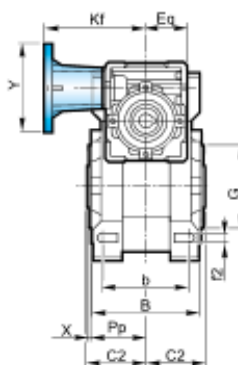
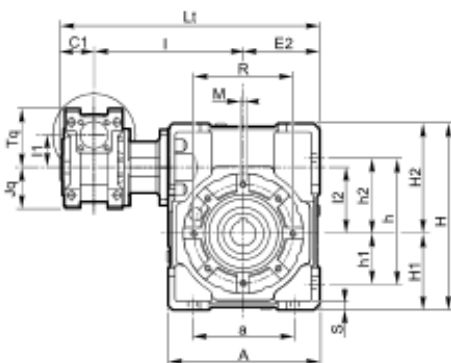
**ХХА**



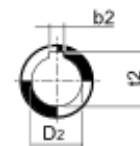
Albero entrata  
Input shaft  
Antriebswelle



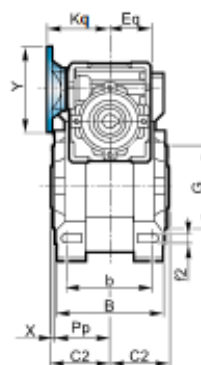
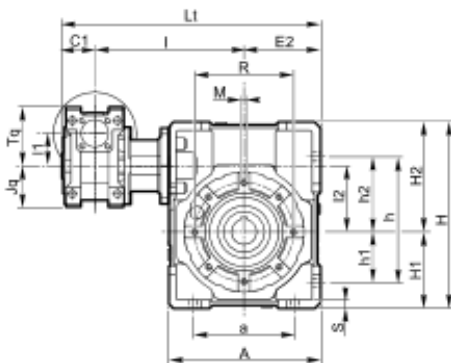
**ХХФ**



Albero uscita cavo  
Output hollow shaft  
Abtriebshohlwelle



**ХХС**



**Выходной вал, реактивная штанга**

5.9 Accessori

5.9 Accessories

5.9 Accessories

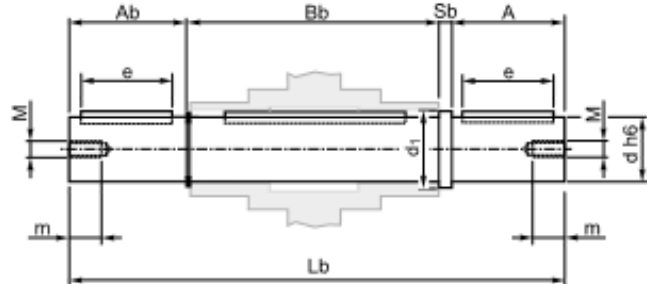
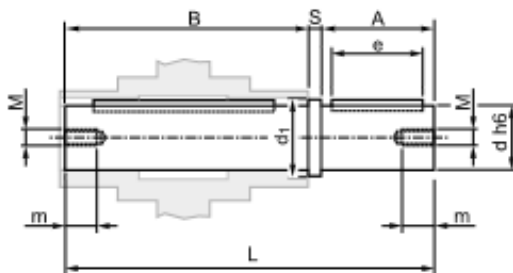
Albero lento

Albero lento semplice  
Single output shaft  
Standard Abtriebswelle

Output shaft

Abtriebswelle

Albero lento doppio  
Double output shaft  
Doppelte Abtriebswelle

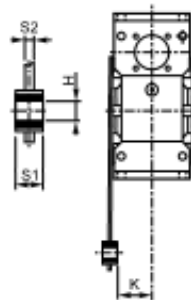
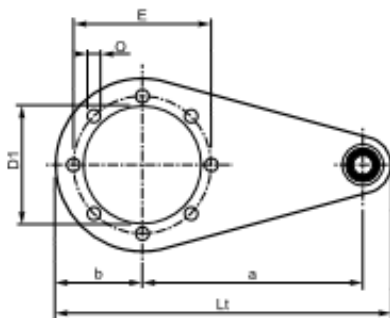


KK-KX-XX	A	B	d h6		d <sub>1</sub>	e	L	M	m	S	A	A <sub>b</sub>	B <sub>b</sub>	d h6	d <sub>1</sub>	e	L <sub>b</sub>	S <sub>b</sub>
30/30	30	62	14		18.5	20	94.5	M8	18	2.5	30	29	64	14	18.5	20	128	2.5
30/40	40	77	18	19	23.5	30	120	M8	18	3	40	39	79	18	23.5	30	161	3
30/50	50	90	25	24	31.5	40	143.5	M8	22	3.5	50	49	93	25	31.5	40	195.5	3.5
30/63 40/63	50	111	25		31.5	40	165	M8	22	4	50	49	113	25	31.5	40	216	4
40/75 50/75	60	119	28	30	34.5	50	183	M8	22	4	60	59	121	28	34.5	50	244	4
40/90 50/90	80	139	35		41.5	60	224	M10	28	5	80	78.5	141.5	35	41.5	60	305	5
50/110 63/110	80	154.5	42		49.5	60	242.5	M10	28	8	80	77.5	157	42	49.5	60	322.5	8
63/130	80	168	45		54.5	70	253	M16	36	5	80	78	172	45	54.5	70	335	5

Braccio di reazione

Torque arm

Drehmomentstütze



KK KX XX	a	b	D <sub>1</sub>	E	H	K	L <sub>t</sub>	O	S1	S2
30/30	85	37.5	55	65	8	24	141.5	7	14	4
30/40	100	45	60	75	10	31.5	167	7	14	4
30/50	100	50	70	85	10	39	172	9	14	5
30/63 40/63	150	55	80	95	10	49	227	9	14	6
40/75 50/75	200	70	95	115	20	47.5	302	9	25	6
40/90 50/90	200	80	110	130	20	57.5	312	11	25	6
50/110 63/110	250	100	130	165	25	62	390	11	30	6
63/130	250	125	180	215	25	69	415	13	30	6

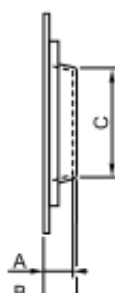
Kit di protezione: solo su versione P

Protection Kit: only for P version

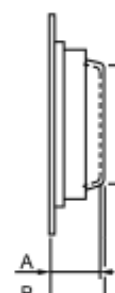
Schutzvorrichtung: nur für Version P

Albero cavo / Hollow shaft / Hohlwelle

Limitatore di coppia / Torque limiter / Drehmomentbegrenzer



KK KX XX	A		B		C	
	IN	OUT	IN	OUT	IN	OUT
30/30		12		13		39
30/40	12	14		15.5	39	44
30/50		15		16.5		54
30/63		17		19		60
40/63	14		15.5		44	
40/75		18		20		70
50/75	15		16.5		54	
40/90	14		15.5	24	44	80
50/90		21.5		24		
50/110	15		16.5		54	
63/110	17	22	19		60	96
63/130	17	22	19	25	60	130



KK KX XX	A		B		C	
	IN	OUT	IN	OUT	IN	OUT
30/30		36		37		36
30/40		40		41.5		44
30/50	36	47	37	48.5	36	53
30/63						
40/63		52		54		55
40/75	40		41.5		44	
50/75		58		60		68
50/90	47		48.5		53	
40/90	40		41.5	63	44	70
50/90		60.5				
50/110	47		48.5		53	
63/110	52	72	54	75	55	85
63/130	52		54		55	

Opzioni disponibili:

Available options:

Auf Anfrage ist folgendes Zubehör erhältlich:

Cuscinetti a rulli conici corona

Tapered roller bearing on wormgear

Kegelrollenlager auf Schneckenrad

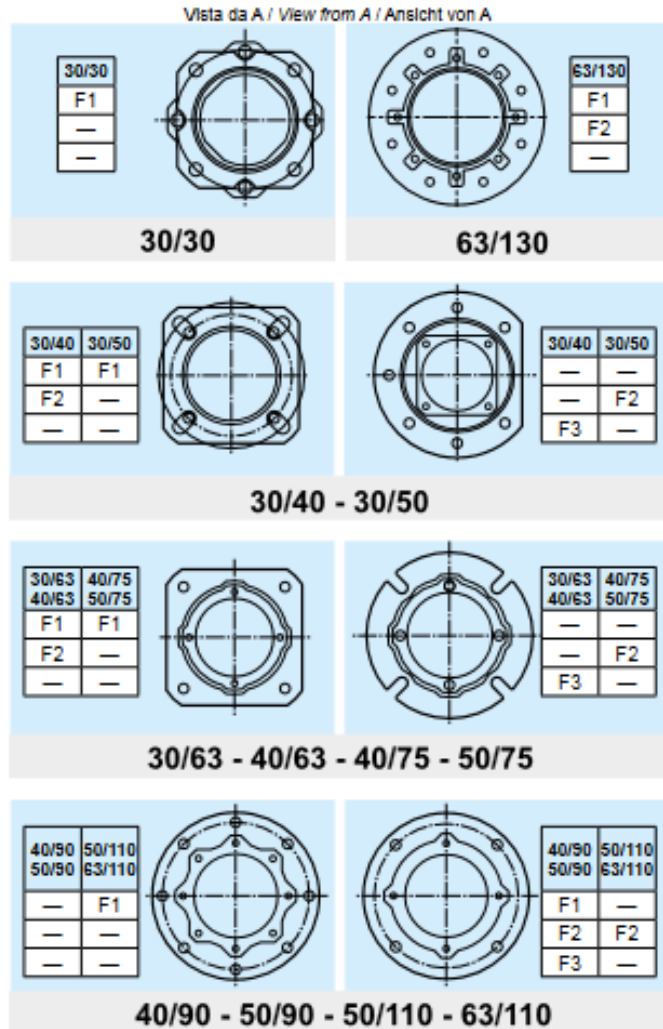
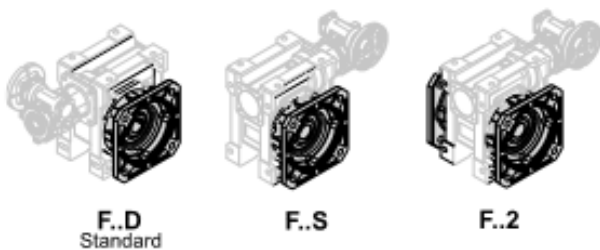
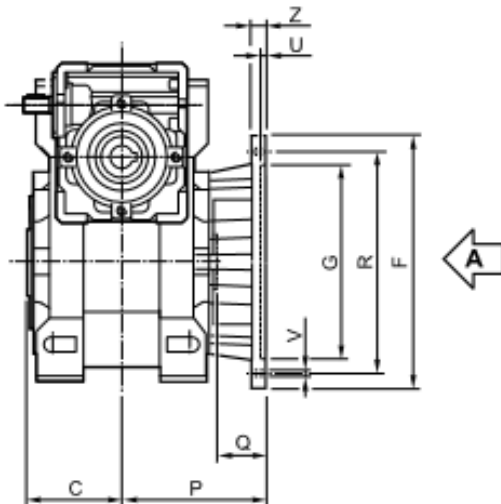
**Выходной фланец**
















5.6 Dimensioni

5.6 Dimensions

5.6 Abmessungen

Flangia uscita / Output flange / Abtriebsflansch



KX XX KK	Тип Type Typ	C	F		G H8	P	Q	R	U	V			Z
												Ø	
30/30	F1	31.5		66	50	54.5	23	68	4	n° 4	6.5	6	
	F2												
	F3												
30/40	F1	39		85	60	67	28	75-90	4	n° 4	9	8	
	F2			85	60	97	58	75-90	4	n° 4	9	8	
	F3			140	95	80	41	115	5		n° 7	9	10
30/50	F1	46		94	70	90	44	85-100	5	n° 4	11	10	
	F2			160	110	89	43	130	5		n° 7	11	11
	F3												
30/63 40/63	F1	56		142	115	82	26	150	5	n° 4	11	11	
	F2			142	115	112	56	150	5	n° 4	11	11	
	F3			160	110	80.5	24.5	130	5	n° 4	11	12	
40/75 50/75	F1	60		160	130	111	51	165	5	n° 4	13	12	
	F2			160	110	90	30	130	6	n° 4	11	13	
	F3												
40/90 50/90	F1	70		200	152	111	41	175	5	n° 4	13	12	
	F2			200	152	151	81	175	5	n° 4	13	13	
	F3			200	130	110	40	165	6	n° 4	11	11	
50/110 63/110	F1	77.5		260	170	131	53.5	230	6		n° 8	13	15
	F2			250	180	150	72.5	215	5	n° 4	15	16	
	F3												
63/130	F1	85		320	180	140	55	255	7		n° 8 *	16	16
	F2			300	230			265					
	F3												

\* Foratura ruotata di 22.5°

\* Drilling turned of 22.5°

\* Durchbohrung 22.5° versetzt

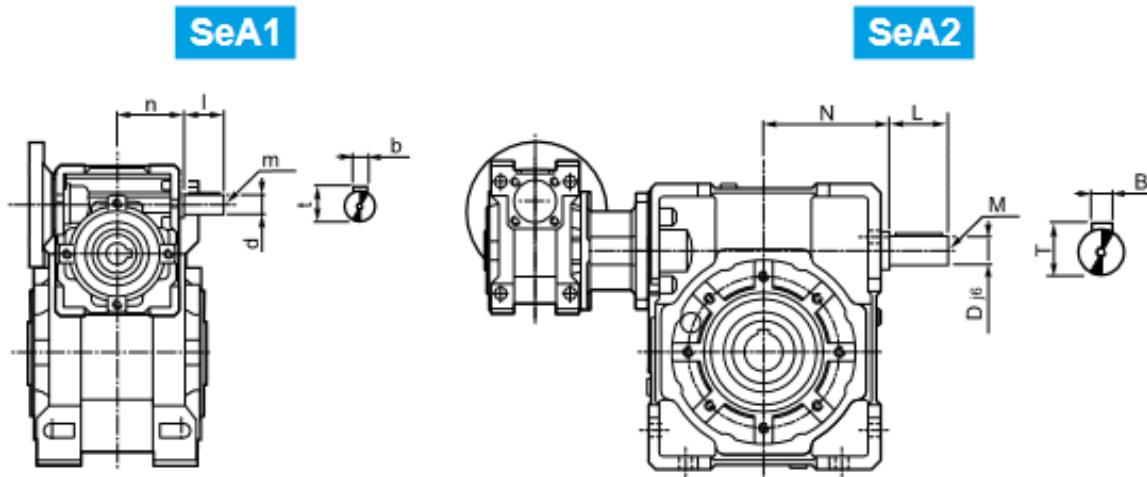


Исполнение SeA1, SeA2

5.8 Esecuzione con vite bisporgente

5.8 Double extended worm shaft design

5.8 Versionen mit Doppelseitig Herausragender Schneckenwelle



L'entrata supplementare del riduttore in uscita (SeA2) non può essere utilizzata come comando in quanto il relativo movimento risulta impedito dalla irreversibilità del primo riduttore.

Utilizzato come asse condotto, avrà velocità corrispondente a quella di ingresso ridotta del rapporto del primo riduttore.

The second input shaft of the output gearbox (SeA2) can not be utilized as a drive because its motion will be stopped by the reversibility of the first gearbox.

If utilized as a drive shaft its speed will be equal to the input speed decreased by the ratio of the first gearbox.

Die verlängerte Schneckenwelle des zweiten Getriebes (SeA2) kann nicht als Antrieb verwendet werden, da die Selbsthemmung des ersten Getriebes entgegengewirkt.

Wird sie als Abtriebswelle verwendet, besitzt sie eine um die Untersetzung des ersten Getriebes entsprechend reduzierte Drehzahl und Drehmoment.

KXC - XXC XXF - XXA KKC	SeA1							SeA2						
	b	d j6	l	m	n		t	B	D j6	L	M	N		T
					KK-KX	XX						KK	KX-XX	
30/30	3	9	15	M4x10	42.5	42.5	10.2	3	9	15	M4x10	42.5	42.5	10.2
30/40	3	9	15	M4x10	42.5	42.5	10.2	4	11	20	M4x12	52.5	52.5	12.5
30/50	3	9	15	M4x10	42.5	42.5	10.2	5	14	25	M5x13	62.5	62.5	16
30/63	3	9	15	M4x10	42.5	42.5	10.2	6	19	30	M8x20	72.5	74.5	21.5
40/63	4	11	20	M4x12	52.5	52.5	12.5	6	19	30	M8x20	72.5	74.5	21.5
40/75	4	11	20	M4x12	52.5	52.5	12.5	8	24	40	M8x20	89	91	27
50/75	5	14	25	M5x13	62.5	62.5	16	8	24	40	M8x20	89	91	27
40/90	4	11	20	M4x12	52.5	52.5	12.5	8	24	40	M8x20	108	108	27
50/90	5	14	25	M5x13	62.5	62.5	16	8	24	40	M8x20	108	108	27
50/110	5	14	25	M5x13	62.5	62.5	16	8	28	50	M8x20	132	132	31
63/110	6	19	30	M8x20	72.5	74.5	21.5	8	28	50	M8x20	132	132	31
63/130	6	19	30	M8x20	72.5	74.5	21.5	10	38	70	M10x25	152	152	41

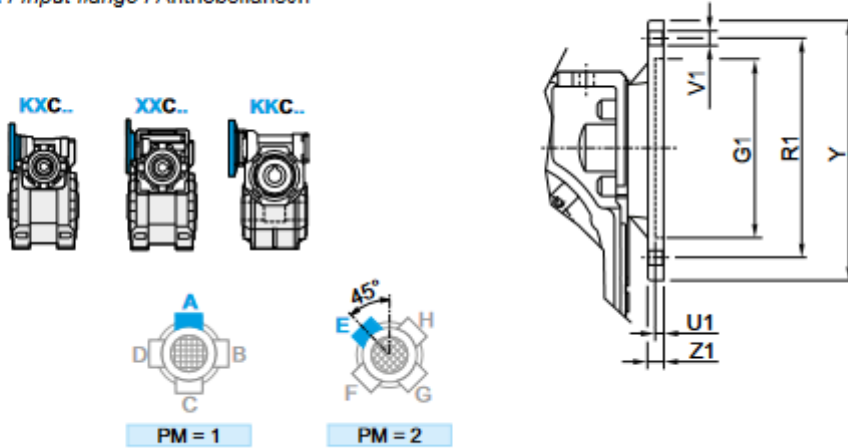
Присоединение под электродвигатель тип КХС,ХХС,ККС




5.6 Dimensioni

5.6 Dimensions

5.6 Abmessungen

Flangia entrata / Input flange / Antriebsflansch



KXC XXC KXC	IEC	G <sub>1</sub> H7	PM		R <sub>1</sub>	U <sub>1</sub>	V <sub>1</sub>			Y	Z <sub>1</sub>	Diametro fori PAM / Holes diameter IEC IEC Durchmesser											
			1	2			Ø						150 200 300	450	600	900	1200	1500 2500	1950 3250	4000	5000 10000		
30/30 30/40 30/50 30/63	56 B5	80	-	-	100	4 7			8		120	8	9	9	9	9	9	9	9	9	9	9	
	56 B14	50	-	-	65	3.5 6			8		80	8	9	9	9	9	9	9	9	9	9	9	
	63 B5	95	-	-	115	4 9			8		140	8	11	11	11	11	11	11	11	11	11	11	
	63 B14	60	-	-	75	4 6			8		90	8	11	11	11	11	11	11	11	11	11	11	
40/63 40/75 40/90	56 B5	80	-	-	100	4 7			8		120	9	/	/	/	/	/	/	9	9	9	9	9
	56 B14	50	-	-	65	3.5 6			8	4	80	8	/	/	/	/	/	/	9	9	9	9	9
	63 B5	95	-	-	115	4 9			8		140	9	11	11	11	11	11	11	11	11	11	11	11
	63 B14	60	-	-	75	3.5 6			8	4	90	8	11	11	11	11	11	11	11	11	11	11	11
	71 B5	110	-	-	130	4.5 9			8		160	10	14	14	14	14	14	14	/	/	/	/	/
71 B14	70	-	-	85	3.5 7			8		105	8	14	14	14	14	14	14	/	/	/	/	/	
50/75 50/90 50/110	63 B5	95	-	-	115	4 9			8		140	9	/	/	/	/	/	/	11	11	11	11	11
	63 B14	60	-	-	75	3.5 6			8	4	90	8	/	/	/	/	/	/	11	11	11	11	11
	71 B5	110	-	-	130	4.5 9			8		160	10	14	14	14	14	14	14	14	14	14	14	14
	71 B14	70	-	-	85	3.5 7			8	4	105	8	14	14	14	14	14	14	14	14	14	14	14
	80 B5	130	-	-	165	4.5 11			8		200	10	19	19	19	19	19	19	/	/	/	/	/
80 B14	80	-	-	100	4 7			8		120	10	19	19	19	19	19	19	/	/	/	/	/	
63/110 63/130	71 B5	110	-	-	130	4.5 9			8		160	10	/	/	/	/	/	/	14	14	14	14	14
	71 B14	70	-	-	85	3.5 7			8	4	105	10	/	/	/	/	/	/	14	14	14	14	14
	80 B5	130	-	-	165	4.5 11			8		200	10	19	19	19	19	19	19	19	19	19	19	19
	80 B14	80	-	-	100	4 7			8	4	120	10	19	19	19	19	19	19	19	19	19	19	19
	90 B5	130	-	-	165	4.5 11			8		200	10	24	24	24	24	24	24	/	/	/	/	/
90 B14	95	-	-	115	4 8.5			8		140	10	24	24	24	24	24	24	/	/	/	/	/	

N.B.: E' possibile realizzare anche tutte le composizioni ibride ottenibili dalle flange esistenti.

N.B.: it is possible to create hybrid combinations with the existing flanges.

ANMERKUNG: Mischkombinationen mit den verfügbaren Flanschen sind möglich.

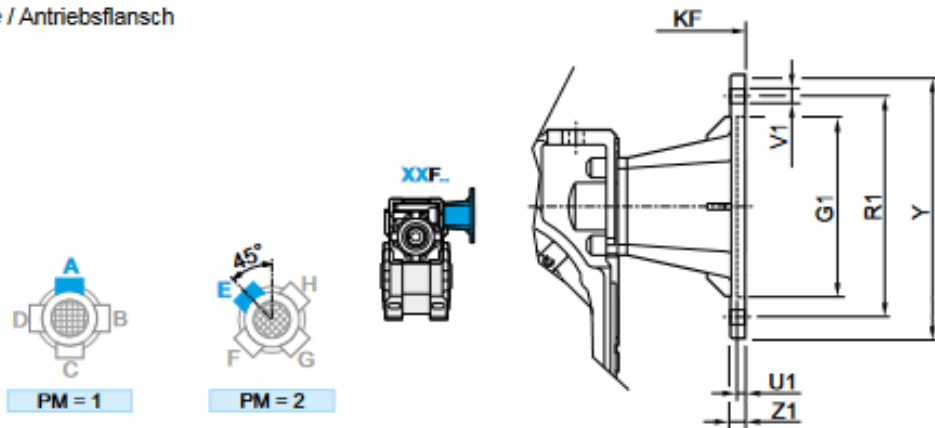
Присоединение под электродвигатель тип XXF

5.6 Dimensioni

5.6 Dimensions

5.6 Abmessungen

Flangia entrata / Input flange / Antriebsflansch



XXF	IEC	PM		G <sub>1</sub> H7	K <sub>r</sub>	R <sub>1</sub>	U <sub>1</sub>	∅	V <sub>1</sub>			Y	Z <sub>1</sub>
		1	2										
30/30 30/40 30/50 30/63	56 B5	•	•	80	82.5	100	3.5	7		8		120	8
	56 B14		•	50	82.5	65	3.5	6			4	80	8
	63 B5	•	•	95	85.5	115	4	9		8		140	10
	63 B14	•	•	60	85.5	75	3.5	6		8		90	8
40/63 40/75 40/90	56 B5	•	•	80	101.5	100	3.5	7		8		120	8
	63 B5	•	•	95	104.5	115	4	9		8		140	10
	63 B14	•	•	60	104.5	75	3.5	6		8		90	8
	71 B5	•	•	110	111.5	130	4.5	9		8		160	10
	71 B14	•	•	70	111.5	85	4	7		8		105	10
50/75 50/90 50/110	63 B5	•	•	95	119.5	115	4	9		8		140	10
	71 B5	•	•	110	126.5	130	4.5	9		8		160	10
	71 B14	•	•	70	126.5	85	3.5	7			4	105	10
	80 B5	•	•	130	136.5	165	4.5	11		8		200	10
	80 B14	•	•	80	136.5	100	4	7		8		120	10
63/110 63/130	71 B5	•	•	110	141.5	130	4.5	9		8		160	10
	80/90 B5	•	•	130	161.5	165	4.5	11		8		200	10
	80 B14	•	•	80	151.5	100	4	7		8		120	10
	90 B14	•	•	95	161.5	115	4	9		8		140	10

5.7 Limitatore di coppia cavo passante

Concepito per lavorare a bagno d'olio, il dispositivo risulta affidabile nel tempo ed è esente da usura se non viene mantenuto in condizioni prolungate di slittamento (condizione che si verifica quando la coppia presenta valori superiori a quelli di taratura).

La taratura è facilmente regolabile dall'esterno attraverso il serraggio di una ghiera autobloccante che porta a compressione le 4 molle a tazza disposte tra loro in serie.

Il dispositivo non consente:

- l'impiego di cuscinetti a rulli conici in uscita
- funzionamento prolungato in condizioni di slittamento.

Nella tabella seguente vengono riportati i valori delle coppie di slittamento M<sub>25</sub> in funzione del n° di giri della ghiera.

5.7 Torque limiter with through hollow shaft

Designed to be working in oil bath, the device is reliable over time and is not subject to wear unless in case of operation with prolonged slipping (it occurs when the torque values are higher than the calibration values).

Calibration can be easily adjusted from outside by tightening of the self-locking ring nut, which causes the compression of the 4 Belleville washers arranged in series.

The device does not go together with:

- the use of tapered roller bearings at output
- prolonged operation under slipping conditions

The following table shows the values of M<sub>25</sub> slipping torques depending on the number of revolutions of the ring nut.

5.7 Drehmomentbegrenzer mit durchgehender Hohlwelle

Er ist zuverlässig und verschleißfrei (nur im Falle eines dauerhaften Rutschens entsteht Verschleiß, hier ist das Drehmoment größer als der eingestellte Eichwert).

Die Eichung kann mühelos von aussen durch das Anziehen einer selbstsperrenden Mutter ausgeführt werden, dadurch wird der Druck auf die 4 wechselseitig angeordneten Tellerfedern erhöht.

Die Vorrichtung sieht das folgende nicht vor:

- die Verwendung von Kegelrollenlager am Abtrieb
- Längerer Rutschbetrieb

Die nachstehende Tabelle zeigt die Werte der Rutschmomente M<sub>25</sub> abhängig von der Anzahl der Umdrehungen der Mutter. Die Eichwerte weisen ±10% Toleranz



## Таблицы подбора мотор-редукторов ХХ 23

5.5 Dati tecnici

5.5 Technical data

5.5 Technische Daten

30/30	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC											
	in	30	30	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC								
		$i_1$	$i_2$								KC - XC		XF						
					[Nm]	[kW]	[Nm]	[kW]			B5/B14	B5	B14	B5	B14				
Kg 3.0	150		15	9.3	0.51	37	0.070	32	0.06	1.2	-	63	56	-	63	56	-	63	56
	200	10	20	7.0	0.47	32	0.050	39	0.06	0.8									
	300			4.7	0.42	39	0.045	52*	0.06	0.8*									
	450	15		3.1	0.40	39	0.032	73*	0.06	0.5*									
	600	20		2.3	0.37	39	0.028	91*	0.06	0.4*									
	900	30	30	1.6	0.34	39	0.019	125*	0.06	0.3*									
	1200	40		1.2	0.30	39	0.016	149*	0.06	0.3*									
	1500	50		0.9	0.28	39	0.014	173*	0.06	0.2*									
	1950	65		0.7	0.26	39	0.011	209*	0.06	0.2*									
	2500	50		0.6	0.23	30	0.008	235*	0.06	0.1*									
	3250	65	50	0.4	0.21	30	0.006	283*	0.06	0.11*									
	4000	80		0.4	0.20	30	0.005	328*	0.06	0.09*									
	5000	100		0.3	0.19	30	0.005	385*	0.06	0.08*									
	10000	100	100	0.1	0.15	17	0.002	609*	0.06	0.03*									

30/40	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC											
	in	30	40	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC								
		$i_1$	$i_2$								KC - XC		XF						
					[Nm]	[kW]	[Nm]	[kW]			B5/B14	B5	B14	B5	B14				
Kg 4.0	150		15	9.3	0.54	82	0.148	72	0.13	1.1	-	63	56	-	63	56	-	63	56
	200	10	20	7.0	0.51	76	0.110	76	0.11	1.0									
	300			4.7	0.43	82	0.094	79	0.09	1.0									
	450	15		3.1	0.40	82	0.067	74	0.06	1.1									
	600	20		2.3	0.37	82	0.054	92	0.06	0.9									
	900	30	30	1.6	0.34	82	0.039	126*	0.06	0.6*									
	1200	40		1.2	0.31	82	0.033	151*	0.06	0.5*									
	1500	50		0.9	0.29	82	0.028	178*	0.06	0.5*									
	1950	65		0.7	0.27	82	0.023	212*	0.06	0.4*									
	2500	50		0.6	0.23	68	0.017	236*	0.06	0.3*									
	3250	65	50	0.4	0.21	68	0.014	285*	0.06	0.24*									
	4000	80		0.4	0.20	68	0.012	330*	0.06	0.21*									
	5000	100		0.3	0.19	68	0.011	387*	0.06	0.18*									
	10000	100	100	0.1	0.15	35	0.003	626*	0.06	0.06*									

30/50	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC											
	in	30	50	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC								
		$i_1$	$i_2$								KC - XC		XF						
					[Nm]	[kW]	[Nm]	[kW]			B5/B14	B5	B14	B5	B14				
Kg 6.0	150		15	9.3	0.55	149	0.265	124	0.22	1.2	-	63	56	-	63	56	-	63	56
	200	10	20	7.0	0.52	144	0.201	129	0.18	1.1									
	300			4.7	0.44	150	0.166	118	0.13	1.3									
	450	15		3.1	0.42	150	0.118	140	0.11	1.1									
	600	20		2.3	0.39	150	0.094	143	0.09	1.0									
	900	30	30	1.6	0.36	150	0.069	131	0.06	1.1									
	1200	40		1.2	0.32	150	0.058	156	0.06	1.0									
	1500	50		0.9	0.30	150	0.049	182	0.06	0.8									
	1950	65		0.7	0.28	150	0.041	220*	0.06	0.7*									
	2500	50		0.6	0.25	125	0.030	253*	0.06	0.5*									
	3250	65	50	0.4	0.23	125	0.025	305*	0.06	0.41*									
	4000	80		0.4	0.22	125	0.021	354*	0.06	0.35*									
	5000	100		0.3	0.20	125	0.018	414*	0.06	0.30*									
	10000	100	100	0.1	0.16	69	0.006	645*	0.06	0.11*									

\* ATTENZIONE: la coppia massima utilizzabile  $[T_{2M}]$  deve essere calcolata utilizzando il fattore di servizio:  $T_{2M} = T_2 \times FS'$

\* WARNING: Maximum allowable torque  $[T_{2M}]$  must be calculated using the following service factor:  $T_{2M} = T_2 \times FS'$

\* ACHTUNG: das max. anwendbare Drehmoment  $[T_{2M}]$  muss mit folgendem Betriebsfaktor berechnet werden:  $T_{2M} = T_2 \times FS'$

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5.5 Dati tecnici

5.5 Technical data

5.5 Technische Daten

30/63	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC											
	in	30	63	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC								
		$i_1$	$i_2$								KC - XC		XF						
							B5/B14		B5		B14								
Kg 8.5	150	10	15	9.3	0.56	228	0.400	126	0.22	1.8	—	63	56	—	63	56	—	63	56
	200		20	7.0	0.54	279	0.378	162	0.22	1.7									
	300			4.7	0.46	268	0.285	207	0.22	1.3									
	450	15	30	3.1	0.43	268	0.202	238	0.18	1.1									
	600	20		2.3	0.40	268	0.162	215	0.13	1.2									
	900	30		1.6	0.37	268	0.118	250	0.11	1.1									
	1200	40		1.2	0.33	268	0.099	243	0.09	1.1									
	1500	50		0.9	0.31	268	0.085	189	0.08	1.4									
	1950	65		0.7	0.29	268	0.071	228	0.08	1.2									
	2500	50	50	0.6	0.26	222	0.050	265	0.08	0.8									
	3250	65		0.4	0.24	222	0.042	319*	0.08	0.70*									
	4000	80		0.4	0.23	222	0.036	369*	0.08	0.60*									
	5000	100		0.3	0.21	222	0.031	433*	0.08	0.51*									
	10000	100		0.1	0.18	138	0.012	663*	0.08	0.21*									

40/63	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC											
	in	40	63	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC								
		$i_1$	$i_2$								KC - XC		XF						
							B5/B14		B5		B14								
Kg 9.5	150	10	15	9.3	0.56	261	0.452	214	0.37	1.2	71	—	—	—	—	—	—	—	—
	200		20	7.0	0.55	279	0.373	277	0.37	1.0									
	300			4.7	0.46	268	0.282	238	0.25	1.1									
	450	15	30	3.1	0.44	268	0.197	244	0.18	1.1									
	600	20		2.3	0.43	268	0.154	226	0.13	1.2									
	900	30		1.6	0.38	268	0.115	257	0.11	1.0									
	1200	40		1.2	0.36	268	0.091	264	0.09	1.0									
	1500	50		0.9	0.33	268	0.079	203	0.08	1.3									
	1950	65		0.7	0.30	268	0.067	241	0.08	1.1									
	2500	50	50	0.6	0.28	222	0.047	284	0.08	0.8									
	3250	65		0.4	0.25	222	0.039	338*	0.08	0.66*									
	4000	80		0.4	0.24	222	0.033	400*	0.08	0.55*									
	5000	100		0.3	0.23	222	0.028	471*	0.08	0.47*									
	10000	100		0.1	0.18	138	0.011	722*	0.08	0.19*									

\* **ATTENZIONE:** la coppia massima utilizzabile  $[T_{2M}]$  deve essere calcolata utilizzando il fattore di servizio:  $T_{2M} = T_2 \times FS'$

\* **WARNING:** Maximum allowable torque  $[T_{2M}]$  must be calculated using the following service factor:  $T_{2M} = T_2 \times FS'$

\* **ACHTUNG:** das max. anwendbare Drehmoment  $[T_{2M}]$  muss mit folgendem Betriebsfaktor berechnet werden:  $T_{2M} = T_2 \times FS'$

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40/75	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC										
	in	40	75	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC							
		$i_1$	$i_2$								KC - XC		XF					
											B5/B14		B5		B14			
	150		15	9.3	0.57	409	0.898	322	0.55	1.3	71	—						
	200	10	20	7.0	0.56	442	0.583	417	0.55	1.1								
	300			4.7	0.47	418	0.432	358	0.37	1.2								
	450	15		3.1	0.45	418	0.302	348	0.25	1.2								
	600	20		2.3	0.43	418	0.236	390	0.22	1.1								
	900	30	30	1.6	0.39	418	0.176	309	0.13	1.4								
	1200	40		1.2	0.36	418	0.140	388	0.13	1.1								
	1500	50		0.9	0.34	418	0.121	379	0.11	1.1	—	56	71	63	56	71	63	—
	1950	65		0.7	0.31	418	0.102	368	0.09	1.1								
	2500	50		0.6	0.29	381	0.077	296	0.08	1.3								
	3250	65	50	0.4	0.26	381	0.065	352	0.08	1.08								
	4000	80		0.4	0.25	381	0.055	417	0.08	0.91								
	5000	100		0.3	0.24	381	0.047	491*	0.08	0.78*								
	10000		100	0.1	0.19	232	0.018	762*	0.08	0.30*								

50/75	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC										
	in	50	75	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC							
		$i_1$	$i_2$								KC - XC		XF					
											B5/B14		B5		B14			
	150		15	9.3	0.57	409	0.750	409	0.75	1.0	80	—						
	200	10	20	7.0	0.56	442	0.576	422	0.55	1.0								
	300			4.7	0.48	418	0.427	363	0.37	1.2								
	450	15		3.1	0.46	418	0.299	350	0.25	1.2								
	600	20		2.3	0.42	418	0.250	418	0.25	1.0								
	900	30	30	1.6	0.40	418	0.180	418	0.18	1.0								
	1200	40		1.2	0.38	418	0.134	406	0.13	1.0								
	1500	50		0.9	0.35	418	0.116	470	0.13	0.9	—	63	80	71	63	80	71	—
	1950	65		0.7	0.33	418	0.095	572*	0.13	0.7*								
	2500	50		0.6	0.30	381	0.074	674*	0.13	0.8*								
	3250	65	50	0.4	0.28	381	0.060	819*	0.13	0.47*								
	4000	80		0.4	0.26	381	0.053	939*	0.13	0.41*								
	5000	100		0.3	0.25	381	0.045	1108*	0.13	0.34*								
	10000		100	0.1	0.19	232	0.018	1719*	0.13	0.13*								

\* **ATTENZIONE:** la coppia massima utilizzabile  $[T_{2M}]$  deve essere calcolata utilizzando il fattore di servizio:  $T_{2M} = T_2 \times FS'$

\* **WARNING:** Maximum allowable torque  $[T_{2M}]$  must be calculated using the following service factor:  $T_{2M} = T_2 \times FS'$

\* **ACHTUNG:** das max. anwendbare Drehmoment  $[T_{2M}]$  muss mit folgendem Betriebsfaktor berechnet werden:  $T_{2M} = T_2 \times FS'$

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5.5 Dati tecnici

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5.5 Technische Daten

40/90	n <sub>1</sub> = 1400					XXA		KXC - XXC - XXF - KKC									
	in	40		n <sub>2</sub> [min <sup>-1</sup> ]	Rd	T <sub>2M</sub> [Nm]	P [kW]	T <sub>2</sub> [Nm]	P <sub>1</sub> [kW]	FS*	Input - IEC						
		i <sub>1</sub>	i <sub>2</sub>								KC - XC		XF				
											B5/B14	B5	B14				
150	10	15	9.3	0.58	435	0.732	327	0.55	1.3	71	—	71	63	56	71	63	—
200			7.0	0.56	560	0.727	424	0.55	1.3								
300			4.7	0.48	673	0.683	542	0.55	1.2								
450	15	20	3.1	0.46	673	0.478	520	0.37	1.3	—	63	71	63	56	71	63	—
600			2.3	0.44	673	0.373	668	0.37	1.0								
900			1.6	0.39	673	0.278	605	0.25	1.1								
1200	30	30	1.2	0.37	673	0.221	668	0.22	1.0	—	63	71	63	56	71	63	—
1500			0.9	0.34	660	0.188	630	0.18	1.0								
1950			0.7	0.31	620	0.149	542	0.13	1.1								
2500	50	50	0.8	0.30	634	0.124	564	0.11	1.1	—	63	71	63	56	71	63	—
3250			0.4	0.28	634	0.104	549	0.09	1.15								
4000			0.4	0.27	634	0.088	651	0.09	0.97								
5000	100	100	0.3	0.25	634	0.074	767	0.09	0.83	—	63	71	63	56	71	63	—
10000			0.1	0.19	401	0.031	1173*	0.09	0.34*								

**kg**  
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50/90	n <sub>1</sub> = 1400					XXA		KXC - XXC - XXF - KKC									
	in	50		n <sub>2</sub> [min <sup>-1</sup> ]	Rd	T <sub>2M</sub> [Nm]	P [kW]	T <sub>2</sub> [Nm]	P <sub>1</sub> [kW]	FS*	Input - IEC						
		i <sub>1</sub>	i <sub>2</sub>								KC - XC		XF				
											B5/B14	B5	B14				
150	10	15	9.3	0.59	655	1.089	541	0.90	1.2	80	—	80	71	63	80	71	—
200			7.0	0.57	709	0.910	584	0.75	1.2								
300			4.7	0.49	673	0.675	548	0.55	1.2								
450	15	20	3.1	0.46	673	0.473	527	0.37	1.3	—	63	71	63	80	71	63	—
600			2.3	0.45	673	0.363	463	0.25	1.5								
900			1.6	0.41	673	0.266	632	0.25	1.1								
1200	30	30	1.2	0.39	673	0.212	573	0.18	1.2	—	63	71	63	80	71	63	—
1500			0.9	0.36	673	0.183	662	0.18	1.0								
1950			0.7	0.34	673	0.150	582	0.13	1.2								
2500	50	50	0.8	0.32	634	0.118	701	0.13	0.9	—	63	71	63	80	71	63	—
3250			0.4	0.30	634	0.097	853*	0.13	0.74*								
4000			0.4	0.28	634	0.084	977*	0.13	0.65*								
5000	100	100	0.3	0.26	634	0.071	1153*	0.13	0.55*	—	63	71	63	80	71	63	—
10000			0.1	0.20	401	0.030	1764*	0.13	0.23*								

**kg**  
29

\* **ATTENZIONE:** la coppia massima utilizzabile [T<sub>2M</sub>] deve essere calcolata utilizzando il fattore di servizio: T<sub>2M</sub> = T<sub>2</sub> x FS'

\* **WARNING:** Maximum allowable torque [T<sub>2M</sub>] must be calculated using the following service factor: T<sub>2M</sub> = T<sub>2</sub> x FS'

\* **ACHTUNG:** das max. anwendbare Drehmoment [T<sub>2M</sub>] muss mit folgendem Betriebsfaktor berechnet werden: T<sub>2M</sub> = T<sub>2</sub> x FS'



# xx 27

5.5 Dati tecnici

5.5 Technical data

5.5 Technische Daten

50/110	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC										
	in	50	110	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC							
		$i_1$	$i_2$								KC - XC		XF					
											B5/B14	B5		B14				
150		15	9.3	0.60	785	1.269	557	0.9	1.4	80	—							
200	10	20	7.0	0.58	1000	1.265	712	0.9	1.4									
300			4.7	0.50	1165	1.130	928	0.9	1.3									
450	15		3.1	0.48	1165	0.791	1105	0.75	1.1									
600	20		2.3	0.47	1165	0.608	1054	0.55	1.1									
900	30	30	1.6	0.43	1165	0.445	968	0.37	1.2									
1200	40		1.2	0.40	1165	0.354	823	0.25	1.4									
1500	50		0.9	0.37	1165	0.306	952	0.25	1.2									
1950	65		0.7	0.35	1150	0.248	1018	0.22	1.1									
2500	50		0.6	0.33	1119	0.200	1009	0.18	1.1									
3250	65	50	0.4	0.31	1119	0.164	886	0.13	1.26	—	63							
4000	80		0.4	0.29	1119	0.143	1015	0.13	1.10									
5000	100		0.3	0.27	1119	0.121	1198	0.13	0.93									
10000	100	100	0.1	0.21	727	0.051	1854*	0.13	0.39*									

**Kg**  
49

63/110	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC										
	in	63	110	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC							
		$i_1$	$i_2$								KC - XC		XF					
											B5/B14	B5		B14				
150		15	9.3	0.61	1123	1.793	939	1.5	1.2	90	—							
200	10	20	7.0	0.59	1229	1.536	1200	1.5	1.0									
300			4.7	0.51	1165	1.116	1148	1.1	1.0									
450	15		3.1	0.49	1165	0.781	1119	0.75	1.0									
600	20		2.3	0.48	1165	0.593	1081	0.55	1.1									
900	30	30	1.6	0.44	1165	0.433	995	0.37	1.2									
1200	40		1.2	0.40	1165	0.370	1165	0.37	1.0									
1500	50		0.9	0.39	1165	0.292	998	0.25	1.2									
1950	65		0.7	0.37	1165	0.239	1217	0.25	1.0									
2500	50		0.6	0.34	1119	0.190	1489	0.25	0.8									
3250	65	50	0.4	0.32	1119	0.156	1792*	0.25	0.62*	—	71							
4000	80		0.4	0.31	1119	0.133	2087*	0.25	0.53*									
5000	100		0.3	0.28	1119	0.117	2395*	0.25	0.47*									
10000	100	100	0.1	0.22	727	0.049	3706*	0.25	0.20*									

**Kg**  
52

63/130	$n_1 = 1400$					XXA		KXC - XXC - XXF - KKC										
	in	63	130	$n_2$	Rd	$T_{2M}$	P	$T_2$	$P_1$	FS'	Input - IEC							
		$i_1$	$i_2$								KC - XC		XF					
											B5/B14	B5		B14				
150		15	9.3	0.64	1438	2.2	1178	1.8	1.2	90	—							
200	10	20	7	0.61	1831	2.2	1498	1.8	1.2									
300			4.7	0.53	1890	1.7	1627	1.5	1.2									
450	15		3.1	0.49	1890	1.3	1655	1.1	1.1									
600	20		2.3	0.47	1890	0.98	1731	0.9	1.1									
900	30	30	1.6	0.42	1890	0.73	1934	0.75	1									
1200	40		1.2	0.39	1890	0.59	1756	0.55	1.1									
1500	50		0.9	0.36	1890	0.51	2026	0.55	0.9									
1950	65		0.7	0.34	1890	0.42	1673	0.37	1.1									
2500	50		0.6	0.33	1920	0.34	2082	0.37	0.9									
3250	65	50	0.4	0.3	1920	0.29	1663	0.25	1.2	—	71							
4000	80		0.4	0.29	1920	0.24	1978	0.25	1.1									
5000	100		0.3	0.26	1920	0.22	2217	0.25	0.9									
10000	100	100	0.1	0.2	1276	0.09	3411	0.25	0.4									

**Kg**  
63

\* ATTENZIONE: la coppia massima utilizzabile  $[T_{2M}]$  deve essere calcolata utilizzando il fattore di servizio:  $T_{2M} = T_2 \times FS'$

\* WARNING: Maximum allowable torque  $[T_{2M}]$  must be calculated using the following service factor:  $T_{2M} = T_2 \times FS'$

\* ACHTUNG: das max. anwendbare Drehmoment  $[T_{2M}]$  muss mit folgendem Betriebsfaktor berechnet werden:  $T_{2M} = T_2 \times FS'$

Общие сведения:

Система обозначений КХС, ХХА, ХХС, ХХФ

5.2 Designazione

5.2 Designation

5.2 Bezeichnung

Riduttore entrata Gearbox at input Getriebe am Antrieb	Macchina uscita Gearbox at output Getriebe am Abtrieb	Tipo entrata Input type Antriebsart	Grandezza Size Größe	Rapporto rid. Ratio Untersetzung	Predispos. att. mot. Motor coupling Motoranschluss	Versione Version Version	Forma costruttiva Execution Bauform	Posizione di mont. Mounting position Einbaulage	Limitatore di coppia. Torque limiter Drehmomentbegrenzer	Seconda entrata Additional input Zusatzantrieb	Albero uscita Output shaft Abtriebswelle	Braccio di reazione Torque arm Drehmomentstütze
<b>K</b>	<b>X</b>	<b>C</b>	<b>50/110</b>	<b>1200</b>	<b>P.A.M.</b>	<b>F1</b>	<b>a</b>	<b>B3</b>	<b>LD</b>	<b>SeA1</b>	<b>H</b>	<b>BR</b>
Riduttore a vite senza fine combinato Combined worm gearbox Doppelschneckengetriebe			30/30 30/40 30/50 30/63 40/63 40/75 40/90 50/75 50/90 50/110 63/110 63/130	150 200 300 450 600 900 1200 1500 1950 2500 3250 4000 5000 10000		56 63 71 80 90	P F (1-2-3)	ab cd ef gh ik lm no pq	 LD  LS	 SeA1  SeA2	H  SD  SS  DD 	 BR

KXC..

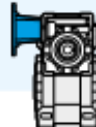


Riduttore entrata Gearbox at input Getriebe am Antrieb	Macchina uscita Gearbox at output Getriebe am Abtrieb	Tipo entrata Input type Antriebsart	Grandezza Size Größe	Rapporto rid. Ratio Untersetzung	Predispos. att. mot. Motor coupling Motoranschluss	Versione Version Version	Forma costruttiva Execution Bauform	Posizione di mont. Mounting position Einbaulage	Limitatore di coppia. Torque limiter Drehmomentbegrenzer	Seconda entrata Additional input Zusatzantrieb	Albero uscita Output shaft Abtriebswelle	Braccio di reazione Torque arm Drehmomentstütze
<b>X</b>	<b>X</b>	<b>C</b>	<b>50/110</b>	<b>1200</b>	<b>P.A.M.</b>	<b>F1</b>	<b>a</b>	<b>B3</b>	<b>LD</b>	<b>SeA1</b>	<b>H</b>	<b>BR</b>
Riduttore a vite senza fine combinato Combined worm gearbox Doppelschneckengetriebe		A  C  F 	30/30 30/40 30/50 30/63 40/63 40/75 40/90 50/75 50/90 50/110 63/110 63/130	150 200 300 450 600 900 1200 1500 1950 2500 3250 4000 5000 10000		56 63 71 80 90	P F (1-2-3)	ab cd ef gh ik lm no pq	 LD  LS	 SeA1  SeA2	H  SD  SS  DD 	 BR

XXA..

XXC..

XXF..

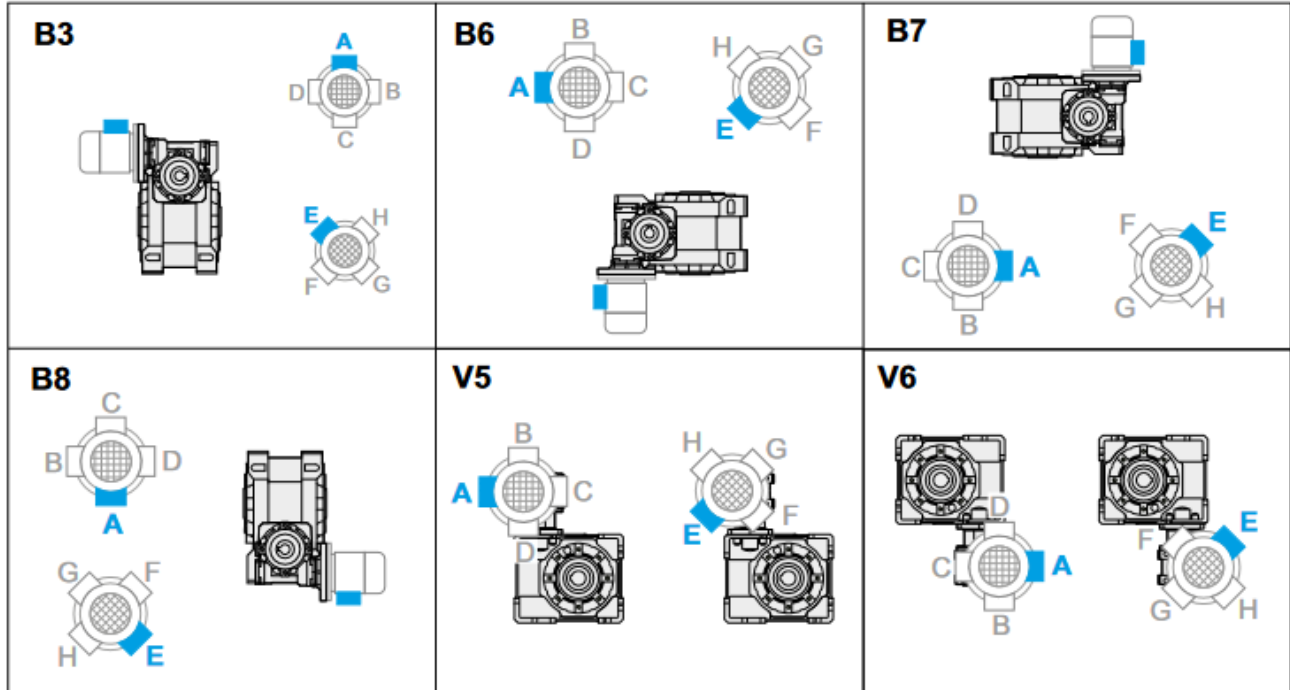


**Монтажные позиции**

5.4 **Posizione morsettiera**

5.4 **Terminal board position**

5.4 **Lage der Klemmenkaste**



Specificare sempre in fase di ordinazione la posizione di montaggio e la forma costruttiva.  
Posizione morsettiera v. pag. 105 - 106 (PM=1; PM=2)

Mounting position always to be specified when ordering.  
Terminal board position see page 105-106 (PM=1; PM=2)

Bei der Bestellung immer die gewünschte Montageposition und Bauform angeben.  
Lage der Klemmenkaste Seite 105-106 (PM=1; PM=2)

## Ограничитель крутящего момента

5.7 Limitatore di coppia cavo passante

5.7 Torque limiter with through hollow shaft

5.7 Drehmomentbegrenzer mit durchgehender Hohlwelle

XX-KX KK	N°. giri della ghiera di regolazione / N°. revolutions of ring nut / Nr. Umdrehungen der Mutter														
	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2
30/30	20	25	30	35	40										
30/40	50	60	70	80	90										
30/50	75	95	115	135	155										
30/63		110	125	145	160	180	200	220	230	245	255	265	285		
40/63															
40/75			220	245	275	310	350	375	410	450					
50/75															
40/90				330	365	410	435	465	500	530	560	580	600	630	670
50/90															
50/110		750	860	1000	1100	1230									
63/110															
63/130															

I valori di taratura presentano una tolleranza del  $\pm 10\%$  e si riferiscono ad una condizione statica.

In condizioni dinamiche è da notare che la coppia di slittamento assume valori diversi a seconda del tipo e/o modalità in cui si verifica il sovraccarico: con valori maggiori in caso di carico uniformemente crescente rispetto a valori più contenuti in seguito al verificarsi di picchi improvvisi di carico.

**NOTA:** quando si supera il valore di taratura si ha slittamento. Il coefficiente di attrito tra le superfici di contatto da statico diventa dinamico e la coppia trasmessa cala del 30% circa.

E' quindi opportuno prevedere uno stop per poter ripartire al valore di taratura iniziale.

Calibration values feature a  $\pm 10\%$  tolerance and refer to static conditions.

Under dynamic conditions the values of the slipping torque will change according to the type of overload: the values are higher if the load increase is uniform; the values are lower if sudden load peaks occur.

**NOTE:** Slipping occurs when the setting values are exceeded.

The friction coefficient between the contact surfaces from static becomes dynamic and the transmitted torque is approx. 30% lower.

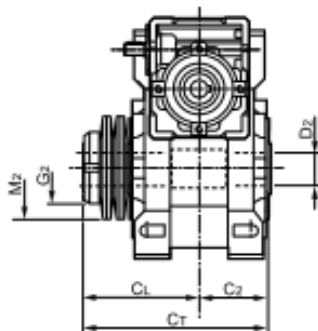
It is advisable to have a stop first in order to have a restart based on the initial setting value.

auf und beziehen sich auf statische Bedingungen.

Unter dynamischen Bedingungen hat das Rutschmoment verschiedene Werte je nach Art der Überbelastung. Die Werte sind höher, wenn die Belastung gleichmäßig zunimmt; sie sind niedriger im Falle von plötzlichen Belastungsspitzen.

**BEMERKUNG:** Rutschen tritt auf, wenn die eingestellten Werte überschritten werden. Der Reibungskoeffizient zwischen den Berührungsf lächen wird dynamisch anstatt statisch und das übertragene Drehmoment sinkt um ca. 30%.

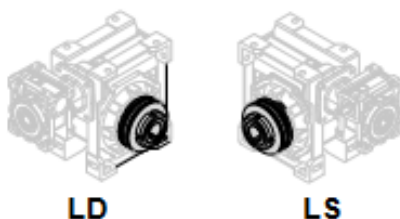
Es ist daher ratsam, vor dem erneuten Anfahren anzuhalten, um die ursprünglichen Drehmomentwerte zu erreichen.



Disposizione delle molle  
Washers' arrangement  
Lage der Feder



IN SERIE (min. coppia, max. sensibilità)  
SERIES (min. torque, max sensitivity)  
SERIE (min. Moment, max. Empfindlichkeit)



XX - KX LD - LS	C <sub>2</sub>	C <sub>L</sub>	C <sub>1</sub>	D <sub>2</sub> H7	G <sub>2</sub>	M <sub>2</sub>
30/30	31.5	55.5	87	14	M25x1.5	50x25.4x1.5
30/40	39	65	104	18 (19)	M30x1.5	56x30.5x2
30/50	46	76	122	25 (24)	M40x1.5	63x40.5x2.5
30/63 40/63	56	91	147	25	M40x1.5	71x40.5x2.5
40/75 50/75	60	100	160	28 (30)	M50x1.5	90x50.5x3.5
40/90 50/90	70	109	179	35 (32)	M50x1.5	100x51x3.5
50/110 63/110	77.5	127.5	205	42	M60x2	125x61x5
63/130						



## Система обозначений ККС

### 5.1 Caratteristiche

La combinazione di due riduttori a vite senza fine comporta rendimenti molto bassi, ma l'elevata riduzione di velocità ottenuta in uno spazio ridottissimo rende comunque interessante, e a volte insostituibile, questa soluzione. I riduttori a vite senza fine combinati sono disponibili nelle serie KX, XX e KK.

Le serie KX e KK sono disponibili esclusivamente nella versione p.a.m.

La serie XX è invece disponibile nella versione alberata XXA e nelle due versioni con predisposizione attacco motore in forma compatta XXC o con campana e giunto XXF.

Sono forniti con albero cavo di serie ed esiste un'ampia gamma di accessori: seconda entrata, cuscinetti conici sulla corona, flangia uscita, albero lento con 1 o 2 sporgenze, limitatore di coppia con cavo passante, braccio di reazione.

### 5.1 Characteristics

The combination of two worm gearboxes provides very low efficiency, however the fact that substantial reduction in speed can be obtained in an extremely reduced space makes this solution very interesting and sometimes irreplaceable. Combined worm gearboxes are available in series: KX, XX and KK.

The KX and KK series are available for IEC version only.

The XX series is available in the XXA version with shaft and in two versions with motor coupling: XXC (compact) and XXF (with bell and joint).

The hollow shaft is supplied as standard. A broad range of accessories is available: second input, tapered roller bearings on the worm wheel, output flange, single or double extended output shaft, torque limiter with through hollow shaft, torque arm.

### 5.1 Merkmale

Die Kombination zweier Schneckengetriebe bringt sehr niedrigen Wirkungsgrad mit sich, es handelt sich jedoch um eine interessante und manchmal unersetzbare Lösung, weil hohe Drehzahlverringern in einem beträchtlich reduzierten Raum erhalten werden kann. Kombinierte Schneckengetriebe sind in folgende Serien erhältlich: KX, XX und KK. Die Serien KX und KK sind nur mit IEC-Motoranbau verfügbar.




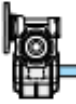


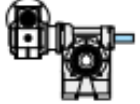
Die Serie XX ist mit Welle (XXA Version), oder mit Kupplung für Motoranschluss (XXC kompakt und XXF mit Glocke und Verbindstück) lieferbar.

Die Hohlwelle gehört zur serienmäßigen Ausstattung. Eine breite Auswahl an Zubehör ist erhältlich: zweiter Antrieb, Kegelrollenlager auf Schneckenrad, Abtriebsflansch, Standard oder doppelseitig herausragende Abtriebswelle, Drehmomentbegrenzer mit durchgehender Hohlwelle, Drehmomentstütze.

### 5.2 Designazione

### 5.2 Designation

### 5.2 Bezeichnung

Riduttore entrata Gearbox at input Getriebe am Antrieb	Maschina uscita Gearbox at output Getriebe am Abtrieb	Tipo entrata Input type Antriebsart	Grandezza Size Größe	Rapporto rid. Ratio Untersetzung	Predispos. att. mol. Motor coupling Motoranschluss	Versione Version Version	Forma costruttiva Execution Bauform	Posizione di mont. Mounting position Einbaulage	Limitatore di coppia Torque limiter Drehmomentbegrenzer	Seconda entrata Additional input Zusatzantrieb	Albero uscita Output shaft Abtriebswelle	Braccio di reazione Torque arm Drehmomentstütze		
K	K	C	50/110 1200	P.A.M.	F1	a	B3	LD	SeA1	H	BR			
Riduttore a vite senza fine combinato Combined worm gearbox Doppelschneckengetriebe		C		150	56 63 71 80 90		ab							
			30/30	200			cd							
			30/40	300										
			30/50	450			P			B3				
			30/63	600						B6				
			40/63	900			F (1-2-3)	gh	B7	LD			SD	
			40/75	1200			A (1-2)	ik	B8					
			40/90	1500			B (1-2)	im	V5					
			50/75	1950			V (1-2)	no	V6					
			50/90	2500										
			50/110	3250										
			63/110	4000										
63/130	5000													
	10000													

