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PLANETARY GEARBOXES

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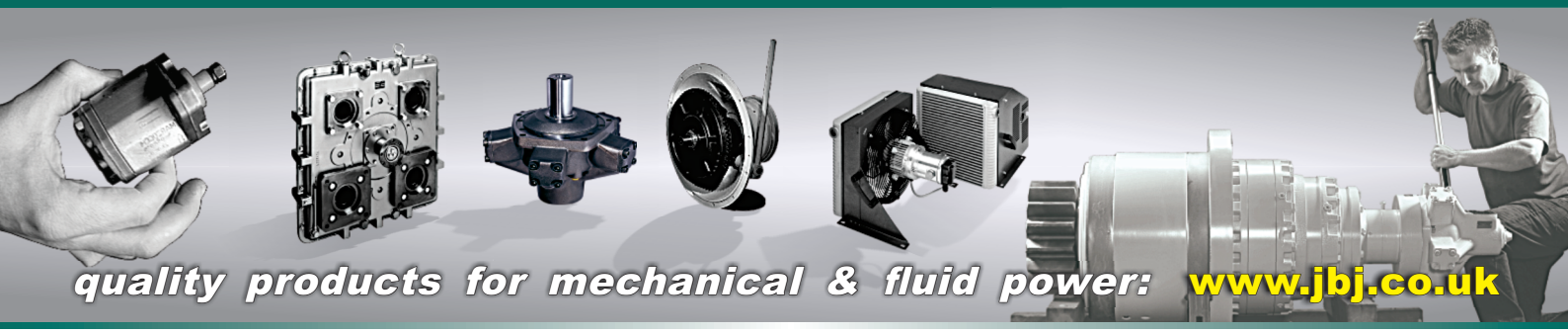

jbj TECHNIQUES LIMITED

VIDEO

USP: *Analyse industry applications & provide proficient solutions to the mechanical power transmission and hydraulics industries.*

PRODUCT SPECIFICATION: team of design engineers to assist in design process, simple or complex, standard or bespoke.

PROMPT PRODUCT SUPPLY: large stocks for next day delivery on many items.

MACHINE SHOP: full machining services for bespoke designs and prompt turnaround.

BELLHOUSINGS / COUPLINGS
- » bellhousings
- » wet mount bellhousing (NEW)
- » spider couplings
- » gear couplings
- » all steel gear couplings (ATEX)
- » 'JXL' couplings (ATEX)
- » tyre couplings (ATEX)
- » torque limiting couplings
- » torsional couplings
- » magnetic couplings (ATEX)
- » disc couplings (ATEX)
- » grid couplings
- » S-flex couplings

- » hydraulic adaptors
- » dampers
- » foot brackets

CLUTCHES / GEARBOXES
- » clutches & gearboxes
- » planetary gearboxes
- » splitter gearboxes
- » power take-off units

PUMPS / MOTORS
- » gear pumps
- » 2 stage gear pumps
- » helical gear pumps Elika®
- » internal gear pumps
- » load sensing gear pumps
- » vane pumps
- » screw pumps
- » hydraulic motors (ATEX)
- » axial piston motors (ATEX)
- » gear motors
- » pneumatic motors (ATEX)
- » pneumatic starters

FLANGES / SEALS
- » port flanges / pipe flanges
- » 'QM' replaceable seal

FLOW / HYDRAULIC PRESSURE
- » flow dividers
- » mini power packs
- » pressure intensifiers

COOLING / HEAT EXCHANGE
- » air - oil coolers
- » off-line cooling
- » bellhousing coolers
- » water - oil coolers
- » plate heat exchangers

RESERVOIRS / LEVEL INDICATORS
- » fluid reservoirs / tanks
- » fluid level indicators
- » hygroscopic breathers
- » fluid power accessories

MISCELLANEOUS
- » hydraulic generator (NEW)

High quality mechanical and fluid power products are always available straight from our comprehensively stocked warehouse, but, we are more than that! If you need more, be it the smallest drive component through to complex drive line component packages, then speak to our experienced sales team who will provide a solution based upon your application requirements.

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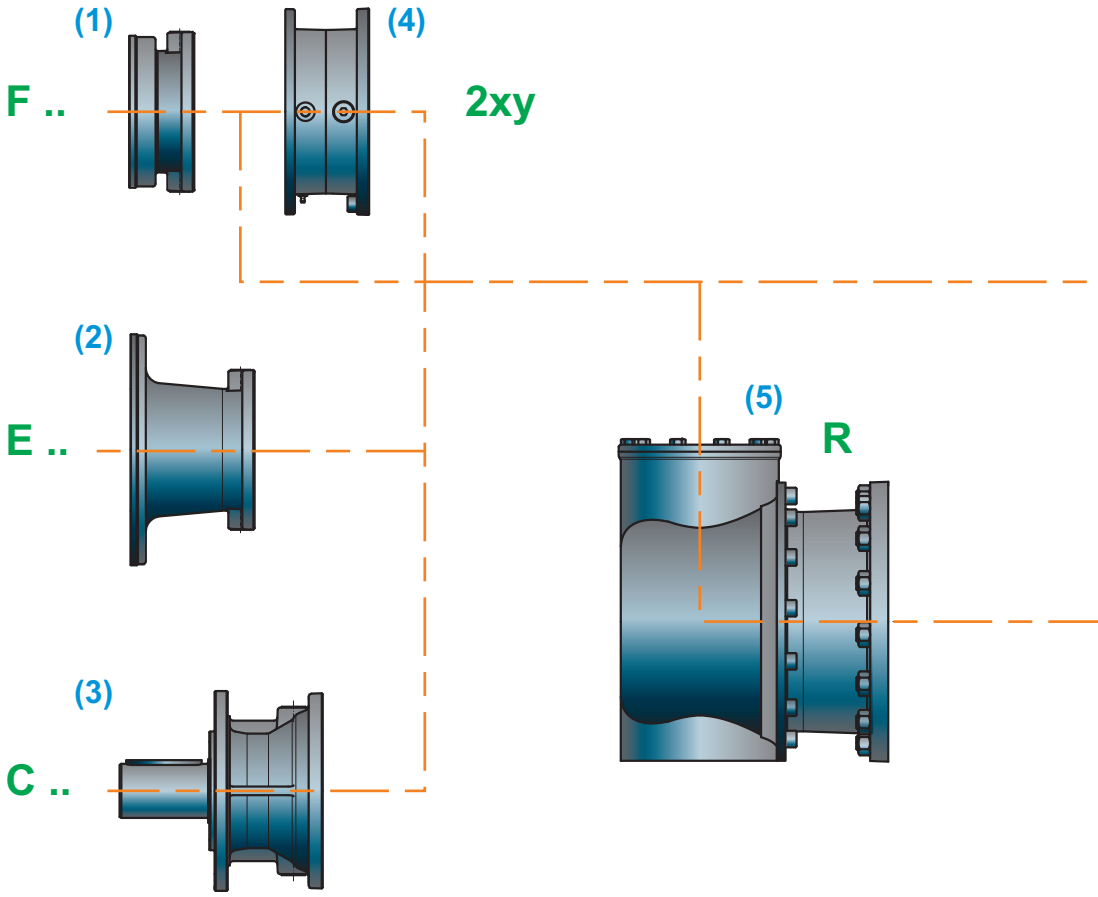
The details contained within this catalogue are reproduced in accordance with the latest information at going to press ..... E & OE

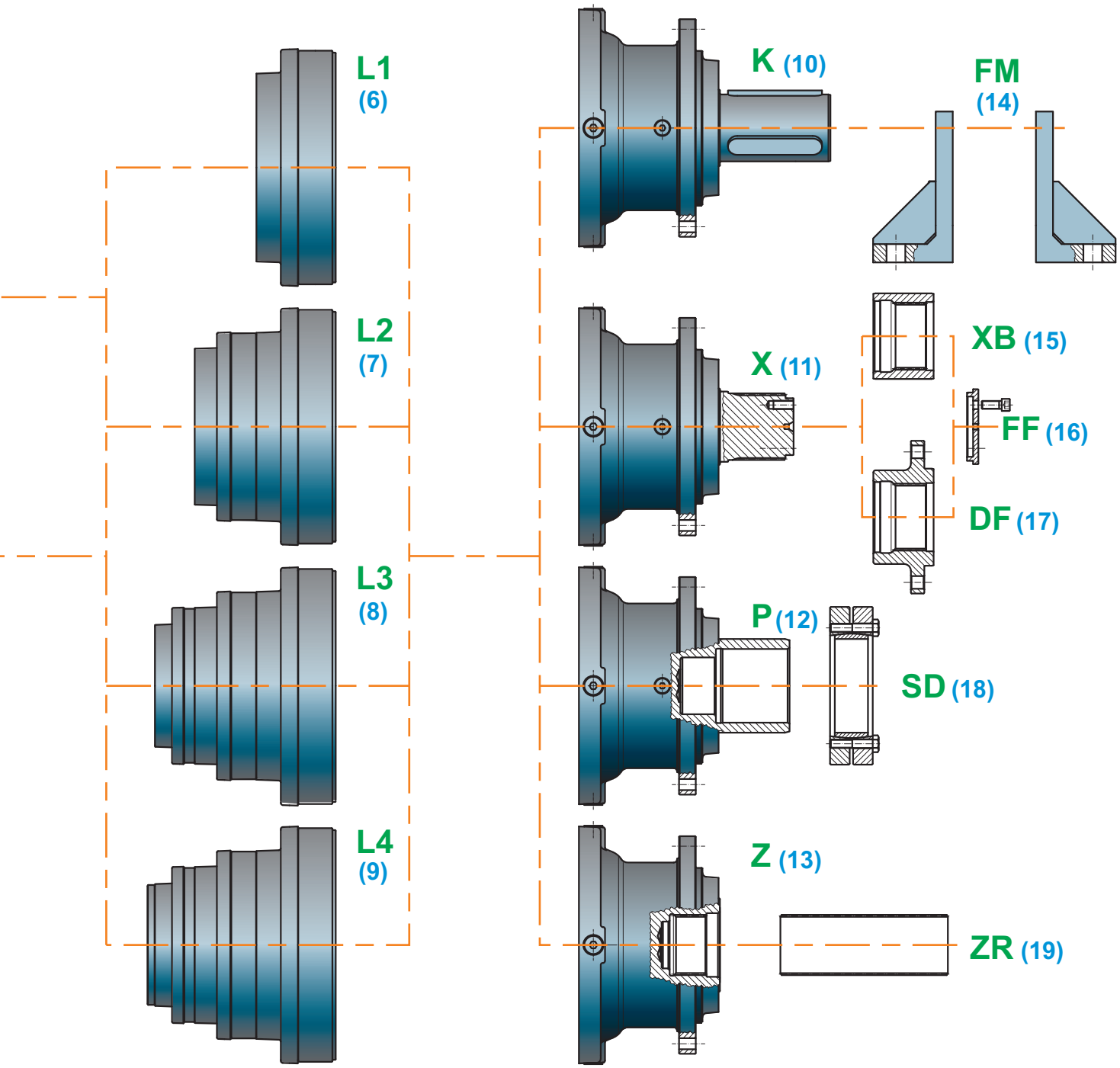


PSR 480 R4 - K13 - 1200 - E 90 - FM

- FM — Foot mount
- E 90 — Adaptor for electric motor IEC 90
- 1200 — Nominal ratio
- K13 — Solid keyed output shaft
- R4 — 4 stage right-angled planetary
- 480 — Gear size 480
- PSR — PSR Gearbox series

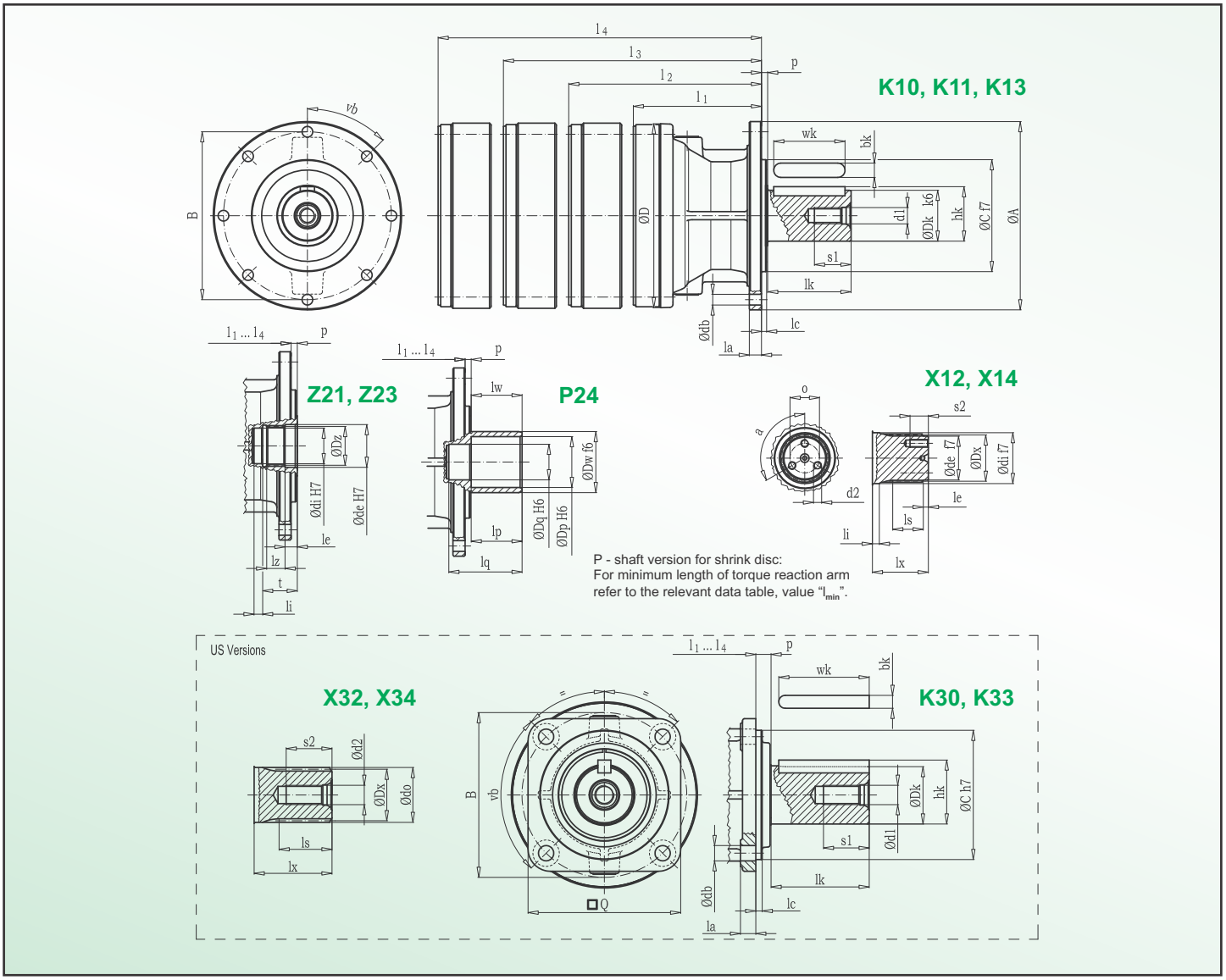
PSR 110 L2 - X12 - 19 - B14 - 2AE - DF

- DF — Drive flange (including fixing plate)
- 2AE — Multi-disc brake
- B14 — Adaptor for hydraulic motor SAE-B 12/24-14T
- 19 — Nominal ratio
- X12 — Solid splined output shaft
- L2 — 2 stage in-line planetary
- 110 — Gear size 110
- PSR — PSR Gearbox series



(1) Motor adaptor for hydraulic motor.
(2) Motor adaptor for electric motor.
(3) High speed shaft.
(4) Multi-disc brake.
(5) Right-angle unit.
(6) One planetary stage.
(7) Two planetary stages.
(8) Three planetary stages.
(9) Four planetary stages.
(10) Solid keyed output support.
(11) Solid splined output support.
(12) Hollow output support for shrink disc.
(13) Hollow splined output support.
(14) Foot mount.
(15) Spline bush.
(16) Fixing flange including bolts.
(17) Drive flange.
(18) Shrink disc.
(19) Splined billet.

E. Koed Christensen A/S



Model	Dimensions (metric) Solid Shafts													Keyed								DIN Splined										
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	de	le	di	li	d2	s2	a	o	code
15	185	12	165	10.5	8 x 45°	110	5	185	6	113	163	213	263	38	58	10	41	50	M12	32	K10	40 x 36	55	30	35	5	42	7	M6	13	3 x 120°	24	X12
18	185	12	165	10.5	8 x 45°	110	5	185	6	113	163	213	263	42	82	12	45	70	M16	36	K11	40 x 36	55	30	35	5	42	7	M6	13	3 x 120°	24	X12
22	185	12	165	10.5	8 x 45°	110	5	185	6	113	163	213	263	50	82	14	53.5	70	M16	36	K13	48 x 44	55	30	43	5	50	7	M8	18	3 x 120°	29	X14
28	185	12	165	10.5	8 x 45°	110	5	185	6	126	176	226	276	50	82	14	53.5	70	M16	36	K13	48 x 44	55	30	43	5	50	7	M8	18	3 x 120°	29	X14
32	185	12	165	10.5	8 x 45°	110	5	185	6	126	176	226	276	50	82	14	53.5	70	M16	36	K13	48 x 44	55	30	43	5	50	7	M8	18	3 x 120°	29	X14

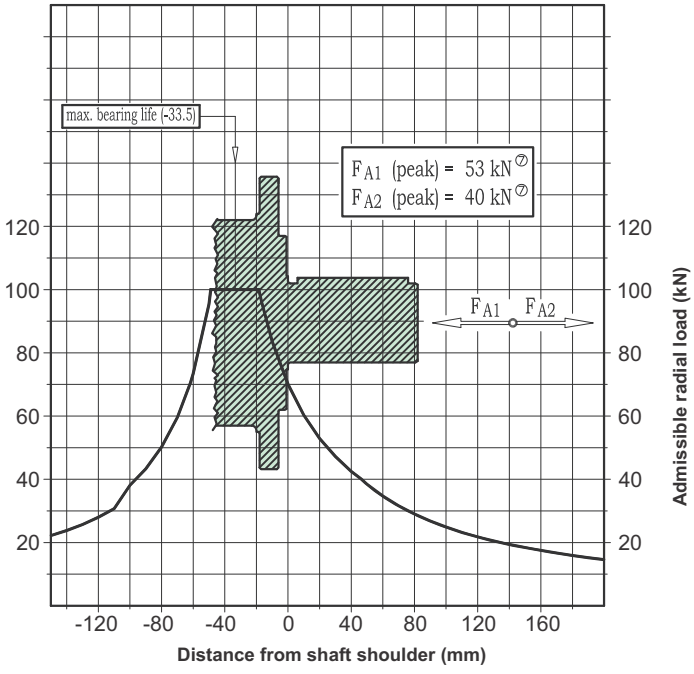
Model	Dimensions (metric) Hollow Shafts													Hollow for Shrink Disc							Hollow Splined							
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dp	lp	Dq	lq	Dw	lw	L min. of torque arm	code	Dz	lz	de	le	di	li	t	code
15	185	12	165	10.5	8 x 45°	110	5	185	6	113	163	213	263	50	50	35	72	60	50	200	P24	40 x 36	18	42	12	35	8.5	34	Z21
18	185	12	165	10.5	8 x 45°	110	5	185	6	113	163	213	263	50	50	35	72	60	50	200	P24	40 x 36	18	42	12	35	8.5	34	Z21
22	185	12	165	10.5	8 x 45°	110	5	185	6	113	163	213	263	50	50	35	72	60	50	250	P24	45 x 41	25	47	5	35	8.5	34	Z23
28	185	12	165	10.5	8 x 45°	110	5	185	6	126	176	226	276	50	50	35	72	60	50	250	P24	45 x 41	25	47	5	35	8.5	34	Z23
32	185	12	165	10.5	8 x 45°	110	5	185	6	126	176	226	276	50	50	35	72	60	50	250	P24	45 x 41	25	47	5	35	8.5	34	Z23

Model	Dimensions , US version, Solid Shafts													Cylindrical								ANSI Splined						
	Q	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	do	d2	s2	code
15	150	15	162	15	4 x 90°	127	6.5	185	15	104	154	204	254	38.1 h6	61	9.525	42.4	57.15	1/2"-13	32	K30	12/24-17T	61	40.5	37.6 h11	3/8"-16	22.5	X32
18	150	15	162	15	4 x 90°	127	6.5	185	15	104	154	204	254	38.1 h6	61	9.525	42.4	57.15	1/2"-13	32	K30	12/24-17T	61	40.5	37.6 h11	3/8"-16	22.5	X32
22	150	15	162	15	4 x 90°	127	6.5	185	15	104	154	204	254	57.15 h7	96.5	9.525	62.9	88.9	3/4"-10	44.5	K33	8/16-16T	76.5	52	53.975 h6	3/4"-10	44.5	X34
28	150	15	162	15	4 x 90°	127	6.5	185	15	117	167	217	267	57.15 h7	96.5	9.525	62.9	88.9	3/4"-10	44.5	K33	8/16-16T	76.5	52	53.975 h6	3/4"-10	44.5	X34
32	150	15	162	15	4 x 90°	127	6.5	185	15	117	167	217	267	57.15 h7	96.5	9.525	62.9	88.9	3/4"-10	44.5	K33	8/16-16T	76.5	52	53.975 h6	3/4"-10	44.5	X34

Dimensions in mm unless otherwise specified

Model	PSR 15	PSR18	PSR 22	PSR 28	PSR 32
Torque Rating [1]	1500 Nm	1800 Nm	2200 Nm	2800 Nm	3200 Nm
L1	Ratio[2] (Act. rating) 3.3 (B) 5.0 (B) 6.9 (C) 3.8 (A) 6.1 (B)	Ratio[2] (Act. rating) 3.3 (B) 4.3 (A) 5.1 (B)	Ratio[2] (Act. rating) 3.7 (A) 4.4 (A)	Ratio[2] (Act. rating) 3.7 (A) 5.8 (C) 5.0 (B) 6.9 (D)	Ratio[2] (Act. rating) 4.3 (A) 5.1 (B)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	8.5/25 kW	8.5/26.5 kW	8.5/28 kW	9/30 kW	9/33 kW
L2	Nom. ratio[2] (Act. rating) 11 (B) 22 (A) 42 (B) 12 (A) 26 (A) 48 (C) 14 (A) 30 (B) 16 (B) 35 (B) 19 (A) 38 (B)	Nom. ratio[2] (Act. rating) 11 (B) 22 (A) 12 (B) 26 (A) 14 (A) 30 (A) 16 (A) 35 (B) 19 (B)	Nom. ratio[2] (Act. rating) 12 (A) 26 (A) 14 (A) 30 (A) 16 (A) 19 (A) 22 (A)	Nom. ratio[2] (Act. rating) 12 (A) 26 (A) 48 (D) 14 (A) 30 (A) 16 (A) 35 (A) 19 (A) 40 (A) 22 (A) 42 (B)	Nom. ratio[2] (Act. rating) 14 (A) 30 (A) 16 (A) 35 (B) 19 (B) 22 (A) 26 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	5/15 kW	5/15.5 kW	5/16 kW	5.5/17 kW	5.5/19 kW
L3	Nom. ratio[2] (Act. rating) 42 (A) 120 (A) 300 (B) 48 (A) 130 (A) 340 (C) 53 (A) 160 (A) 63 (A) 180 (A) 71 (A) 210 (B) 85 (A) 240 (B) 100 (A) 260 (B)	Nom. ratio[2] (Act. rating) 48 (A) 130 (A) 53 (A) 150 (A) 60 (A) 160 (A) 71 (A) 180 (A) 85 (A) 210 (B) 100 (A) 240 (B) 110 (A)	Nom. ratio[2] (Act. rating) 42 (A) 110 (A) 48 (A) 130 (A) 53 (A) 150 (A) 60 (A) 160 (A) 71 (A) 180 (A) 85 (A) 210 (A) 100 (A)	Nom. ratio[2] (Act. rating) 42 (A) 120 (A) 300 (D) 48 (A) 140 (A) 340 (D) 53 (A) 160 (A) 63 (A) 180 (A) 71 (A) 210 (B) 85 (A) 240 (B) 100 (A) 280 (C)	Nom. ratio[2] (Act. rating) 48 (A) 130 (A) 53 (A) 150 (A) 60 (A) 160 (A) 75 (A) 180 (A) 85 (A) 210 (A) 100 (A) 240 (B) 110 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	4/7 kW	4/7.5 kW	4/8 kW	4.5/10 kW	4.5/11 kW
L4	Nom. ratio[2] (Act. rating) 200 (A) 500 (A) 1250 (A) 248 (A) 600 (A) 1500 (B) 260 (A) 670 (A) 1700 (B) 280 (A) 710 (A) 1800 (B) 320 (A) 800 (A) 2000 (B) 360 (A) 900 (A) 2300 (C) 400 (A) 1000 (A) 450 (A) 1100 (A)	Nom. ratio[2] (Act. rating) 220 (A) 750 (A) 280 (A) 950 (A) 320 (A) 1050 (A) 380 (A) 1100 (A) 420 (A) 1250 (A) 500 (A) 1400 (A) 560 (A) 1500 (B) 670 (A) 1700 (B)	Nom. ratio[2] (Act. rating) 240 (A) 750 (A) 280 (A) 900 (A) 320 (A) 1050 (A) 360 (A) 1100 (A) 420 (A) 1250 (A) 500 (A) 1400 (A) 560 (A) 670 (A)	Nom. ratio[2] (Act. rating) 200 (A) 500 (A) 1250 (A) 240 (A) 600 (A) 1500 (B) 260 (A) 670 (A) 1700 (B) 280 (A) 710 (A) 1900 (C) 320 (A) 800 (A) 2000 (D) 360 (A) 900 (A) 2300 (D) 400 (A) 1000 (A) 450 (A) 1100 (A)	Nom. ratio[2] (Act. rating) 240 (A) 750 (A) 280 (A) 800 (A) 320 (A) 900 (B) 380 (A) 1050 (A) 420 (A) 1250 (A) 500 (A) 1400 (A) 560 (A) 1700 (B) 670 (B)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	3.5/2 kW	3.5/2.3 kW	3.5/2.5 kW	3.7/3 kW	3.7/3.5 kW
Actual Torque Rating (Nm)[4]	(A) 1700 (B) 1500 (C) 1300	(A) 2050 (B) 1800	(A) 2400	(A) 3200 (B) 2800 (C) 2600 (D) 2400	(A) 3700 (B) 3350
Peak Torque[5]	2000 Nm	2400 Nm	2800 Nm	3700 Nm	4100 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

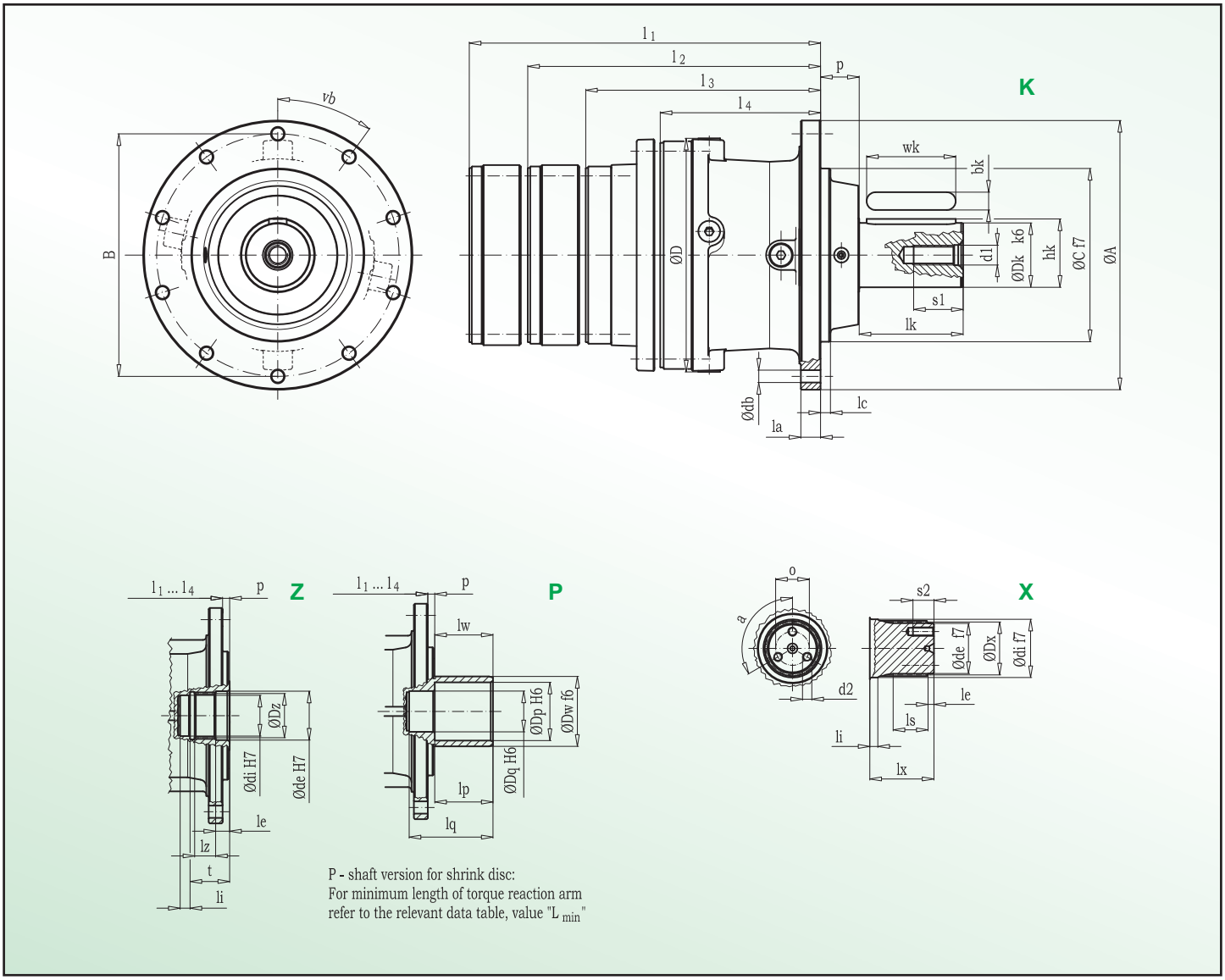
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



Model	Dimensions (metric) Solid Shafts													Keyed								DIN Splined									
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	de	le	di	li	d2	s2	a	o	code
36	220	18	195	12.5	10 x 36°	150	14	242	15	140	194	244	294	60	105	18	64	90	M20	50	K11	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12
42	220	18	195	12.5	10 x 36°	150	14	242	15	140	194	244	294	60	105	18	64	90	M20	50	K11	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12
50	220	18	195	12.5	10 x 36°	150	14	242	15	140	194	244	294	60	105	18	69	90	M20	50	K13	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12
60	220	18	195	12.5	10 x 36°	150	14	242	15	140	222	272	322	60	105	18	69	90	M20	50	K13	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12
67	220	18	195	12.5	10 x 36°	150	14	242	15	140	222	272	322	60	105	18	69	90	M20	50	K13	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12

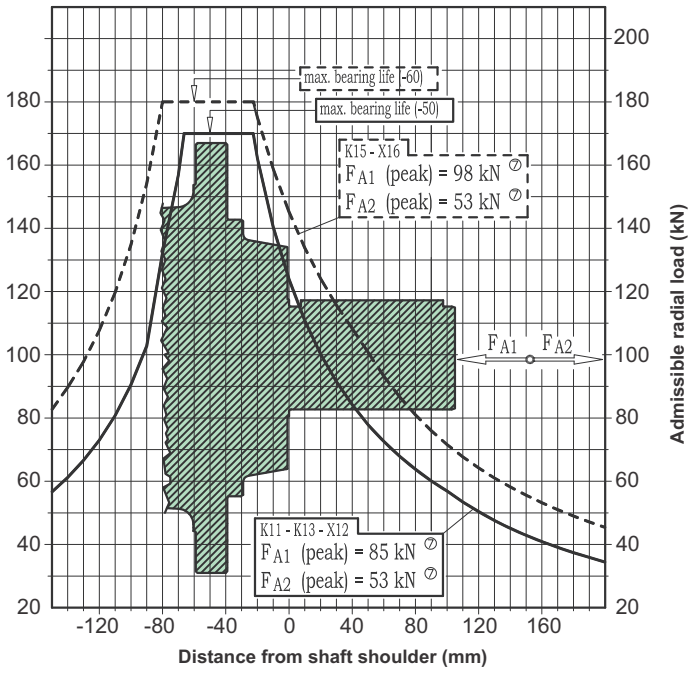
Model	Dimensions (metric) Reinforced Solid Shafts													Keyed								DIN Splined									
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	de	le	di	li	d2	s2	a	o	code
36	272	20	245	12.5	10 x 36°	175	10	242	39	148.5	198.5	248.5	298.5	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16
42	272	20	245	12.5	10 x 36°	175	10	242	39	148.5	198.5	248.5	298.5	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16
50	272	20	245	12.5	10 x 36°	175	10	242	39	148.5	198.5	248.5	298.5	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16
60	272	20	245	12.5	10 x 36°	175	10	242	39	163.5	230.5	280.5	330.5	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16
67	272	20	245	12.5	10 x 36°	175	10	242	39	163.5	230.5	280.5	330.5	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16

Model	Dimensions (metric) Hollow Shafts													Hollow for Shrink Disc							Hollow Splined							
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dp	lp	Dq	lq	Dw	lw	L min. of torque arm	code	Dz	lz	de	le	di	li	t	code
36	220	18	195	12.5	10 x 36°	150	14	242	15	140	194	244	294	75	70	50	100	90	50	250	P24	58 x 53	24	60	15	50	10	44	Z21
42	220	18	195	12.5	10 x 36°	150	14	242	15	140	194	244	294	75	70	50	100	90	50	250	P24	58 x 53	24	60	15	50	10	44	Z21
50	220	18	195	12.5	10 x 36°	150	14	242	15	140	194	244	294	75	70	50	100	90	50	300	P24	58 x 53	24	60	15	50	10	44	Z21
60	220	18	195	12.5	10 x 36°	150	14	242	15	155	222	272	322	75	70	50	100	90	50	300	P24	58 x 53	24	60	15	50	10	44	Z21
67	220	18	195	12.5	10 x 36°	150	14	242	15	155	222	272	322	75	70	50	100	90	50	300	P24	58 x 53	24	60	15	50	10	44	Z21

Dimensions in mm unless otherwise specified

Model	PSR 36	PSR 42	PSR 50	PSR 60	PSR 67
Torque Rating [1]	3600 Nm	4200 Nm	5000 Nm	6000 Nm	6700 Nm
L1	Ratio[2] (Act. rating) 3.3 (B) 5.0 (B) 6.9 (C) 3.8 (A) 6.1 (B)	Ratio[2] (Act. rating) 3.3 (B) 4.3 (A) 5.1 (B)	Ratio[2] (Act. rating) 3.7 (A) 4.4 (A)	Ratio[2] (Act. rating) 3.7 (A) 5.8 (C) 5.0 (B) 6.9 (D)	Ratio[2] (Act. rating) 4.3 (A) 5.1 (B)
n_1 nom./max.	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm
P th.[3]/max.	13/60 kW	13/63 kW	13/67 kW	15/90 kW	15/100 kW
L2	Nom. ratio[2] (Act. rating) 11 (B) 22 (A) 42 (B) 12 (A) 26 (A) 48 (C) 14 (A) 30 (B) 16 (B) 35 (B) 19 (A) 38 (B)	Nom. ratio[2] (Act. rating) 11 (B) 22 (A) 12 (B) 26 (A) 14 (A) 30 (A) 16 (A) 35 (B) 19 (B)	Nom. ratio[2] (Act. rating) 12 (A) 26 (A) 14 (A) 16 (A) 19 (A) 22 (A)	Nom. ratio[2] (Act. rating) 14 (A) 34 (A) 19 (A) 36 (A) 22 (A) 40 (A) 26 (A) 48 (A) 30 (A)	Nom. ratio[2] (Act. rating) 16 (A) 36 (B) 19 (B) 22 (A) 25 (A) 30 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	7.5/25 kW	7.5/26 kW	7.5/27 kW	8/30 kW	8/33 kW
L3	Nom. ratio[2] (Act. rating) 42 (A) 120 (A) 300 (B) 48 (A) 130 (A) 340 (C) 53 (A) 160 (A) 63 (A) 180 (A) 71 (A) 210 (B) 85 (A) 240 (B) 100 (A) 260 (B)	Nom. ratio[2] (Act. rating) 48 (A) 130 (A) 53 (A) 150 (A) 60 (A) 160 (A) 71 (A) 180 (A) 85 (A) 210 (A) 100 (A) 240 (B) 110 (A)	Nom. ratio[2] (Act. rating) 42 (A) 110 (A) 48 (A) 120 (A) 53 (A) 130 (A) 60 (A) 150 (A) 71 (A) 160 (A) 85 (A) 180 (A) 100 (A)	Nom. ratio[2] (Act. rating) 48 (A) 130 (A) 300 (C) 53 (A) 150 (A) 340 (D) 63 (A) 160 (A) 71 (A) 180 (A) 80 (A) 210 (B) 95 (A) 240 (B) 110 (A) 280 (C)	Nom. ratio[2] (Act. rating) 53 (A) 150 (A) 60 (A) 170 (A) 71 (B) 180 (A) 80 (A) 210 (A) 95 (A) 240 (B) 110 (A) 130 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	5.5/15 kW	5.5/16 kW	5.5/17 kW	6/25 kW	6/28 kW
L4	Nom. ratio[2] (Act. rating) 200 (A) 500 (A) 1250 (A) 248 (A) 600 (A) 1500 (B) 260 (A) 670 (A) 1700 (B) 280 (A) 710 (A) 1800 (B) 320 (A) 800 (A) 2000 (B) 360 (A) 900 (A) 2300 (C) 400 (A) 1000 (A) 450 (A) 1100 (A)	Nom. ratio[2] (Act. rating) 220 (A) 750 (A) 280 (A) 950 (A) 320 (A) 1050 (A) 380 (A) 1100 (A) 420 (A) 1250 (A) 500 (A) 1400 (A) 560 (A) 1500 (B) 670 (A) 1700 (B)	Nom. ratio[2] (Act. rating) 200 (A) 600 (A) 240 (A) 670 (A) 280 (A) 750 (A) 360 (A) 800 (A) 420 (A) 900 (A) 480 (A) 1100 (A) 500 (A) 1300 (A) 560 (A)	Nom. ratio[2] (Act. rating) 200 (A) 560 (A) 1400 (B) 240 (A) 600 (A) 1500 (B) 260 (A) 670 (A) 1700 (B) 300 (A) 750 (A) 1900 (C) 360 (A) 800 (A) 2000 (D) 420 (A) 900 (A) 2300 (D) 480 (A) 1050 (A) 530 (A) 1250 (A)	Nom. ratio[2] (Act. rating) 220 (A) 630 (A) 280 (A) 670 (A) 300 (A) 750 (A) 360 (A) 900 (A) 380 (A) 1050 (A) 420 (A) 1200 (A) 480 (A) 1400 (A) 560 (A) 1700 (B)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	4.5/5 kW	4.5/6 kW	4.5/6 kW	5/8 kW	5/9 kW
Actual Torque Rating (Nm)[4]	(A) 4100 (B) 3600 (C) 3150	(A) 4900 (B) 4300	(A) 5700	(A) 7000 (B) 6200 (C) 5500 (D) 5100	(A) 8250 (B) 7200
Peak Torque[5]	4500 Nm	5500 Nm	6700 Nm	8000 Nm	9000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

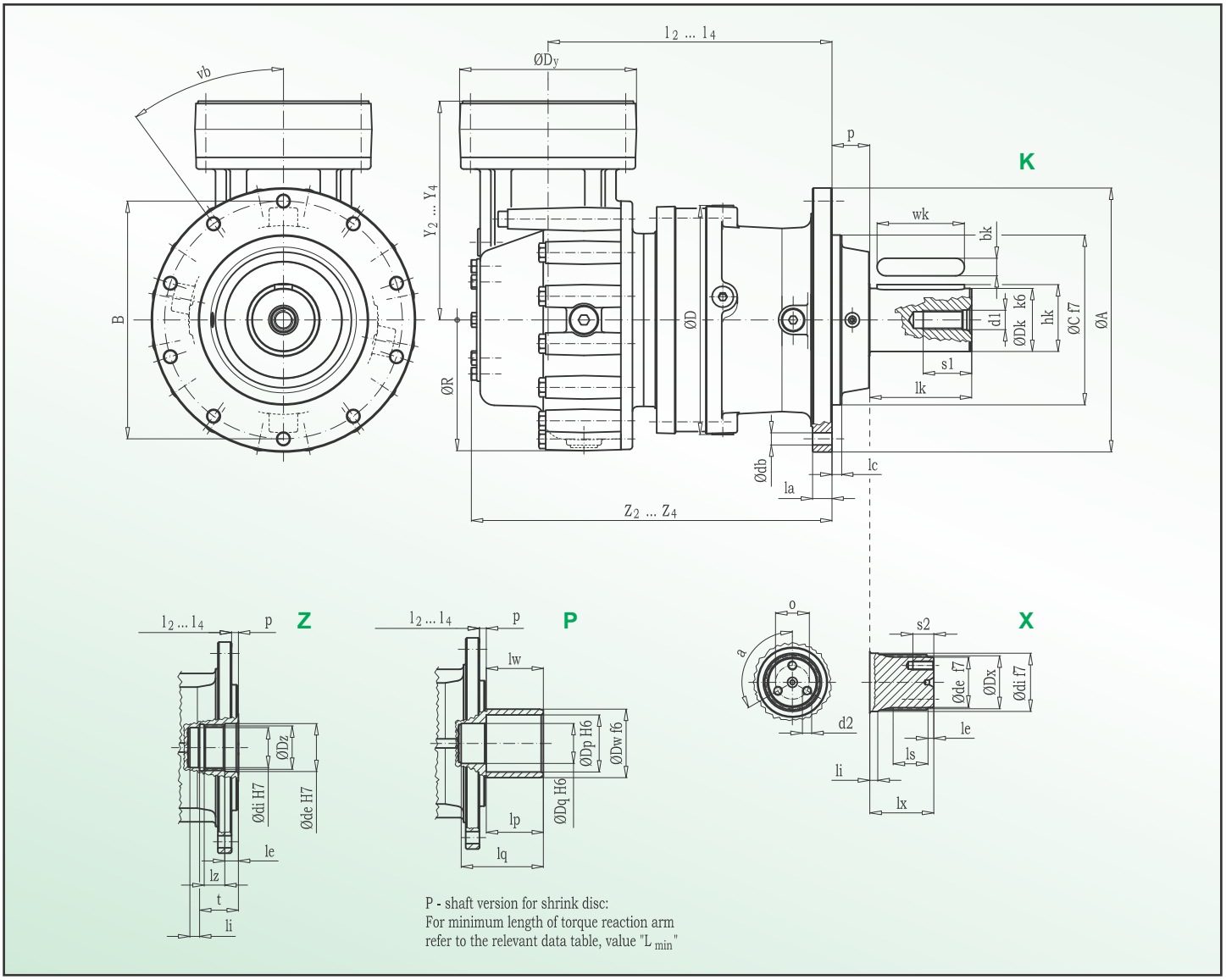
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



Model	Dimensions (metric) Standard Solid Shafts																			Keyed							DIN Splined									
	A	la	B	db	vb	C	lc	D	p	l_2	l_3	l_4	Y_2	Y_3	Y_4	Dy	Z_2	Z_3	Z_4	R	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	de	le	di	li	d2	s2	a	o	code
36	220	18	195	12.5	10 x 36°	150	14	242	15	269	269	269	226	276	326	185	348	348	348	274	60	105	18	64	90	M20	50	K11	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12
42	220	18	195	12.5	10 x 36°	150	14	242	15	269	269	269	226	276	326	185	348	348	348	274	60	105	18	64	90	M20	50	K11	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12
50	220	18	195	12.5	10 x 36°	150	14	242	15	269	269	269	226	276	326	185	348	348	348	274	60	105	18	69	90	M20	50	K13	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12
60	220	18	195	12.5	10 x 36°	150	14	242	15	284	284	284	226	276	326	185	363	363	363	274	60	105	18	69	90	M20	50	K13	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12
67	220	18	195	12.5	10 x 36°	150	14	242	15	284	284	284	226	276	326	185	363	363	363	274	60	105	18	69	90	M20	50	K13	58 x 53	68	38	50	8	60	7	M10	20	3 x 120°	32	X12

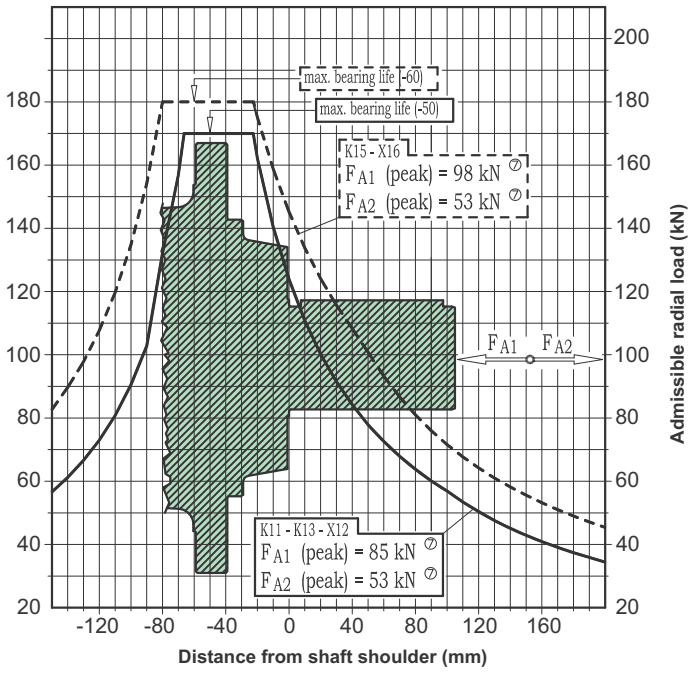
Model	Dimensions, (metric) Reinforced Solid Shafts																			Keyed							DIN Splined									
	A	la	B	db	vb	C	lc	D	p	l_2	l_3	l_4	Y_2	Y_3	Y_4	Dy	Z_2	Z_3	Z_4	R	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	de	le	di	li	d2	s2	a	o	code
36	272	20	245	12.5	10 x 36°	175	10	242	39	278	278	278	226	276	326	185	357	357	357	270	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16
42	272	20	245	12.5	10 x 36°	175	10	242	39	278	278	278	226	276	326	185	357	357	357	270	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16
50	272	20	245	12.5	10 x 36°	175	10	242	39	278	278	278	226	276	326	185	357	357	357	270	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16
60	272	20	245	12.5	10 x 36°	175	10	242	39	293	293	293	226	276	326	185	372	372	372	270	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16
67	272	20	245	12.5	10 x 36°	175	10	242	39	293	293	293	226	276	326	185	372	372	372	270	65	105	18	69	90	M20	50	K15	58 x 53	80	50	50	8	60	7	M10	20	3 x 120°	32	X16

Model	Dimensions, (metric) Hollow Shafts																			Hollow for Shrink Disc								Hollow Splined							
	A	la	B	db	vb	C	lc	D	p	l_2	l_3	l_4	Y_2	Y_3	Y_4	Dy	Z_2	Z_3	Z_4	R	Dp	lp	Dq	lq	Dw	lw	code	L min. of torque arm	Dx	lz	de	le	di	li	t	code
36	220	18	195	12.5	10 x 36°	150	14	242	15	269	269	269	226	276	326	185	348	348	348	270	75	70	50	100	90	50	P24	250	58 x 53	24	60	15	50	10	44	Z21
42	220	18	195	12.5	10 x 36°	150	14	242	15	269	269	269	226	276	326	185	348	348	348	270	75	70	50	100	90	50	P24	250	58 x 53	24	60	15	50	10	44	Z21
50	220	18	195	12.5	10 x 36°	150	14	242	15	269	269	269	226	276	326	185	348	348	348	270	75	70	50	100	90	50	P24	300	58 x 53	24	60	15	50	10	44	Z21
60	220	18	195	12.5	10 x 36°	150	14	242	15	284	284	284	226	276	326	185	363	363	363	270	75	70	50	100	90	50	P24	300	58 x 53	24	60	15	50	10	44	Z21
67	220	18	195	12.5	10 x 36°	150	14	242	15	284	284	284	226	276	326	185	363	363	363	270	75	70	50	100	90	50	P24	300	58 x 53	24	60	15	50	10	44	Z21

Dimensions in mm unless otherwise specified

Model	PSR 36	PSR 42	PSR 50	PSR 60	PSR 67
Torque Rating [1]	3600 Nm	4200 Nm	5000 Nm	6000 Nm	6700 Nm
R2	Nom. ratio[2] (Act. rating) 10 (B) 21 (C) 12 (A) 25 (B) 16 (B) 30 (B) 18 (A) 34 (C)	Nom. ratio[2] (Act. rating) 10 (B) 25 (B) 13 (A) 16 (B) 21 (A)	Nom. ratio[2] (Act. rating) 12 (A) 14 (A) 18 (A) 21 (A)	Nom. ratio[2] (Act. rating) 12 (A) 28 (C) 16 (A) 34 (D) 18 (A) 25 (B)	Nom. ratio[2] (Act. rating) 13 (A) 16 (B) 21 (A) 25 (B)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	15/25 kW	15/26 kW	15/27 kW	16/30 kW	16/33 kW
R3	Nom. ratio[2] (Act. rating) 34 (B) 90 (A) 38 (A) 100 (B) 45 (A) 110 (A) 53 (B) 125 (A) 60 (A) 150 (B) 67 (A) 170 (B) 71 (A) 210 (B) 80 (A) 240 (A)	Nom. ratio[2] (Act. rating) 34 (B) 80 (A) 38 (B) 85 (A) 45 (A) 95 (A) 50 (A) 105 (A) 53 (B) 130 (A) 60 (B) 150 (A) 67 (A) 170 (B) 71 (A)	Nom. ratio[2] (Act. rating) 38 (A) 95 (A) 45 (A) 105 (A) 50 (A) 125 (A) 60 (A) 150 (A) 67 (A) 71 (A) 80 (A) 85 (A)	Nom. ratio[2] (Act. rating) 38 (A) 110 (A) 42 (A) 125 (A) 53 (B) 150 (B) 60 (A) 170 (B) 67 (A) 200 (A) 71 (A) 240 (A) 80 (A) 90 (A)	Nom. ratio[2] (Act. rating) 45 (A) 105 (A) 50 (A) 130 (A) 53 (B) 150 (A) 67 (A) 170 (B) 71 (A) 80 (A) 85 (A) 95 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	11/15 kW	11/16 kW	11/17 kW	12/25 kW	12/28 kW
R4	Nom. ratio[2] (Act. rating) 140 (A) 630 (A) 160 (A) 670 (A) 180 (B) 750 (A) 200 (A) 850 (A) 220 (A) 900 (B) 260 (A) 1050 (B) 300 (A) 1250 (B) 340 (A) 1400 (B) 400 (A) 1600 (C) 450 (A) 500 (A) 560 (A)	Nom. ratio[2] (Act. rating) 170 (A) 630 (A) 190 (A) 750 (A) 220 (A) 800 (A) 250 (A) 900 (A) 260 (A) 1000 (A) 300 (A) 1200 (B) 340 (A) 360 (A) 400 (A) 480 (A) 530 (A) 560 (A)	Nom. ratio[2] (Act. rating) 160 (A) 530 (A) 190 (A) 560 (A) 220 (A) 630 (A) 250 (A) 670 (A) 300 (A) 750 (A) 340 (A) 800 (A) 360 (A) 850 (A) 400 (A) 900 (A) 420 (A) 1000 (A) 450 (A) 480 (A) 500 (A)	Nom. ratio[2] (Act. rating) 140 (A) 670 (A) 160 (A) 750 (A) 200 (A) 850 (A) 220 (A) 950 (B) 250 (A) 1050 (B) 300 (A) 1200 (B) 340 (A) 1400 (C) 400 (A) 1600 (D) 450 (A) 500 (A) 560 (A) 630 (A)	Nom. ratio[2] (Act. rating) 170 (A) 750 (A) 190 (A) 800 (A) 220 (A) 900 (A) 260 (A) 950 (B) 300 (A) 1050 (B) 340 (A) 1200 (B) 400 (A) 420 (A) 480 (A) 530 (A) 560 (A) 630 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	5/5 kW	5.5/5.5 kW	6/6 kW	7.5/8 kW	7.5/9 kW
Actual Torque Rating (Nm)[4]	(A) 4100 (B) 3600 (C) 3150	(A) 4900 (B) 4300	(A) 5700	(A) 7000 (B) 6200 (C) 5500 (D) 5100	(A) 8250 (B) 7200
Peak Torque[5]	4500 Nm	5500 Nm	6700 Nm	8000 Nm	9000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

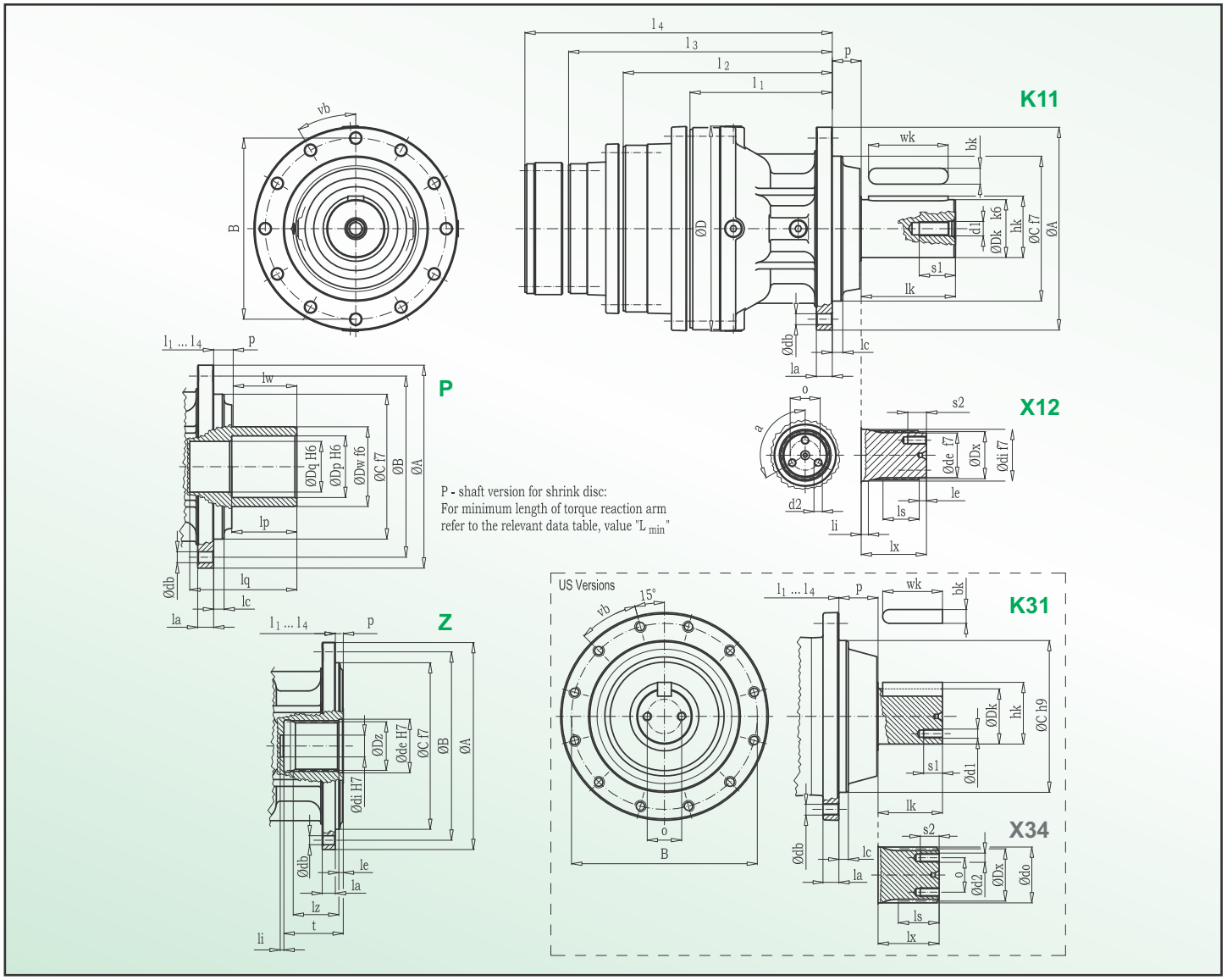
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



Model	Dimensions (metric) Solid Shafts													Keyed								DIN Splined										
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	de	le	di	li	d2	s2	a	o	code
75	280	22	250	15	12 x 30°	200	14.5	285	40	181.5	250.5	304.5	354.5	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12
85	280	22	250	15	12 x 30°	200	14.5	285	40	181.5	250.5	304.5	354.5	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12
100	280	22	250	15	12 x 30°	200	14.5	285	40	181.5	250.5	304.5	354.5	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12
110	280	22	250	15	12 x 30°	200	14.5	285	40	181.5	250.5	304.5	354.5	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12
130	280	22	250	15	12 x 30°	200	14.5	285	40	181.5	250.5	304.5	354.5	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12

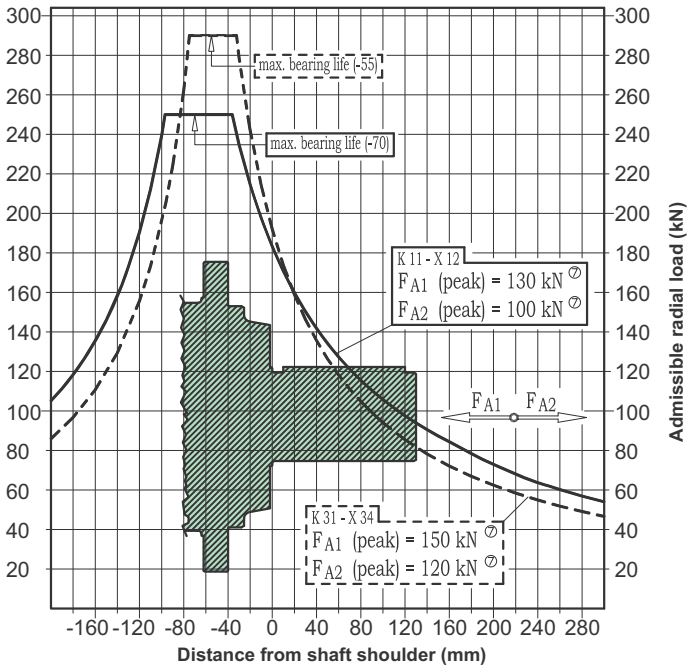
Model	Hollow shafts						Hollow for Shrink Disc														Hollow Splined												
	A	D	l_1	l_2	l_3	l_4	la	B	db	vb	C	lc	p	Dp	lp	Dq	lq	Dw	lw	l_{min}	code	la	B	db	vb	C	lc	p	Dz	lz	de	le	di	li	t	code
75	280	285	181.5	250.5	304.5	354.5	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21
85	280	285	181.5	250.5	304.5	354.5	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21
100	280	285	181.5	250.5	304.5	354.5	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21
110	280	285	196.5	265.5	319.5	369.5	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21
130	280	285	196.5	265.5	334.5	384.5	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21

Model	Dimensions (US version) Solid Shafts													Cylindrical										ANSI Splined								
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	a	o	code	Dx	lx	ls	do	d2	s2	a	o	code
75	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	130.5	199.5	253.5	303.5	76.2 h7	88.9	19.05	85.1	82.5	½" -20	25	2 x 180°	47.6	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34
85	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	130.5	199.5	253.5	303.5	76.2 h7	88.9	19.05	85.1	82.5	½" -20	25	2 x 180°	47.6	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34
100	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	130.5	199.5	253.5	303.5	76.2 h7	88.9	19.05	85.1	82.5	½" -20	25	2 x 180°	47.6	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34
110	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	145.5	214.5	253.5	318.5	76.2 h7	88.9	19.05	85.1	82.5	½" -20	25	2 x 180°	47.6	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34
130	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	145.5	229.5	253.5	333.5	76.2 h7	88.9	19.05	85.1	82.5	½" -20	25	2 x 180°	47.6	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34

Dimensions in mm unless otherwise specified

Model	PSR 75	PSR 85	PSR 100	PSR 110	PSR 130
Torque Rating (1)	7500 Nm	8500 Nm	10000 Nm	11000 Nm	13000 Nm
L1	Ratio(2) (Act. rating) 3.3 (B) 5.0 (B) 6.9 (C) 3.8 (A) 6.1 (B)	Ratio(2) (Act. rating) 3.3 (B) 4.3 (A) 5.1 (B)	Ratio(2) (Act. rating) 3.7 (A) 4.4 (A)	Ratio(2) (Act. rating) 3.7 (A) 5.8 (C) 5.0 (B) 6.9 (D)	Ratio(2) (Act. rating) 4.3 (A) 5.1 (B)
n_1 nom./max.	2800/3800 rpm	2500/3300 rpm	2500/3500 rpm	2000/3000 rpm	2000/3000 rpm
P th.(3)/max.	22/120 kW	22/125 kW	22/132 kW	24/145 kW	24/158 kW
L2	Nom. ratio(2) (Act. rating) 11 (B) 22 (A) 42 (B) 12 (A) 26 (A) 48 (C) 14 (A) 30 (B) 16 (B) 35 (B) 19 (A) 38 (B)	Nom. ratio(2) (Act. rating) 11 (B) 22 (A) 12 (B) 26 (A) 14 (A) 30 (A) 16 (A) 35 (B) 19 (B)	Nom. ratio(2) (Act. rating) 12 (A) 26 (A) 14 (A) 30 (A) 16 (A) 19 (A) 22 (A)	Nom. ratio(2) (Act. rating) 12 (A) 30 (A) 14 (A) 36 (A) 16 (A) 42 (A) 19 (A) 22 (A)	Nom. ratio(2) (Act. rating) 16 (A) 36 (B) 19 (B) 22 (A) 25 (A) 30 (A)
n_1 nom./max.	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm
P th.(3)/max.	13.5/54kW	13.5/57kW	13.5/60kW	15/66kW	15/72kW
L3	Nom. ratio(2) (Act. rating) 42 (A) 120 (A) 300 (B) 48 (A) 130 (A) 340 (C) 53 (A) 160 (A) 63 (A) 180 (A) 71 (A) 210 (B) 85 (A) 240 (B) 100 (A) 260 (B)	Nom. ratio(2) (Act. rating) 48 (A) 130 (A) 53 (A) 150 (A) 60 (A) 160 (A) 71 (A) 180 (A) 85 (A) 210 (A) 100 (A) 240 (B) 110 (A)	Nom. ratio(2) (Act. rating) 42 (A) 110 (A) 48 (A) 120 (A) 53 (A) 130 (A) 60 (A) 150 (A) 71 (A) 160 (A) 85 (A) 180 (A) 100 (A)	Nom. ratio(2) (Act. rating) 48 (A) 130 (A) 300 (C) 53 (A) 150 (A) 340 (D) 63 (A) 160 (A) 71 (A) 180 (A) 80 (A) 210 (B) 95 (A) 240 (B) 110 (A) 280 (C)	Nom. ratio(2) (Act. rating) 53 (A) 150 (A) 60 (A) 170 (A) 71 (B) 180 (A) 80 (A) 210 (A) 95 (A) 240 (B) 110 (A) 130 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.(3)/max.	9.5/22 kW	9.5/23.5 kW	9.5/25kW	10.5/28 kW	10.5/31kW
L4	Nom. ratio(2) (Act. rating) 200 (A) 500 (A) 1250 (A) 240 (A) 600 (A) 1500 (B) 260 (A) 670 (A) 1700 (B) 280 (A) 710 (A) 1800 (B) 320 (A) 800 (A) 2000 (B) 360 (A) 900 (A) 2300 (C) 400 (A) 1000 (A) 450 (A) 1100 (A)	Nom. ratio(2) (Act. rating) 220 (A) 750 (A) 1700 (B) 280 (A) 850 (A) 320 (A) 950 (A) 380 (A) 1050 (A) 420 (A) 1100 (A) 500 (A) 1250 (A) 560 (A) 1400 (A) 670 (A) 1500 (B)	Nom. ratio(2) (Act. rating) 220 (A) 670 (A) 260 (A) 710 (A) 300 (A) 800 (A) 360 (A) 900 (A) 420 (A) 1050 (A) 480 (A) 1250 (A) 560 (A) 1400 (A) 600 (A)	Nom. ratio(2) (Act. rating) 180 (A) 600 (A) 1500 (B) 220 (A) 670 (A) 1700 (C) 260 (A) 710 (A) 2000 (D) 300 (A) 800 (A) 360 (A) 900 (A) 420 (A) 1050 (B) 480 (A) 1200 (B) 560 (A) 1300 (B)	Nom. ratio(2) (Act. rating) 220 (A) 670 (A) 1400 (A) 260 (B) 750 (A) 1500 (B) 300 (A) 850 (A) 1700 (B) 360 (A) 900 (A) 420 (A) 950 (A) 480 (A) 1050 (A) 560 (A) 1200 (A) 600 (A) 1300 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.(3)/max.	7.5/11 kW	7.5/11.5 kW	7.5/12kW	8.5/13.5 kW	8.5/15 kW
Actual Torque Rating (Nm)(4)	(A) 8700 (B) 7800 (C) 6600	(A) 10400 (B) 9400	(A) 12000	(A) 13000 (B) 11700 (C) 10800 (D) 9900	(A) 15000 (B) 13000
Peak Torque(5)	10500 Nm	12000 Nm	13500 Nm	15000 Nm	16000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

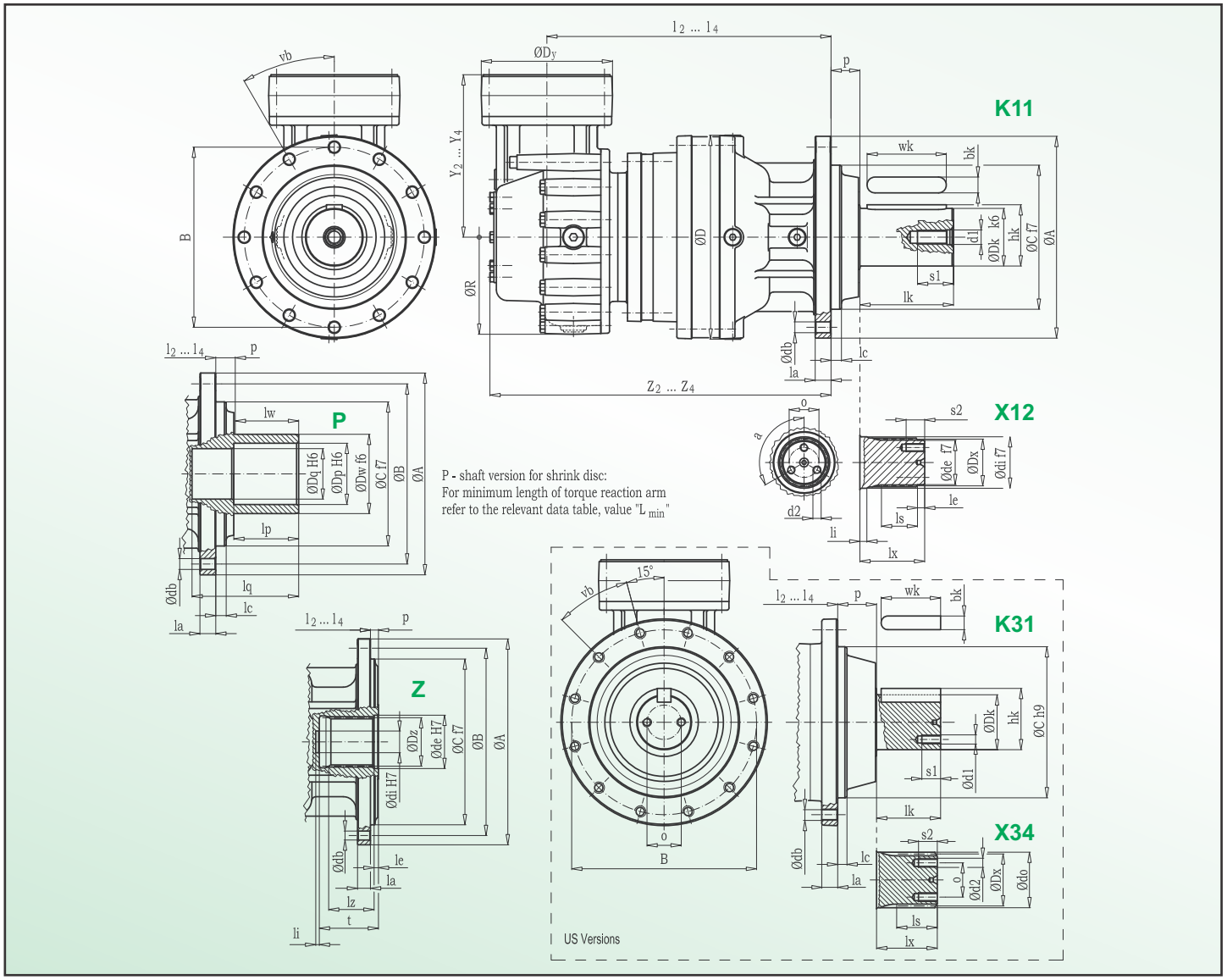
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



Model	Dimensions (metric) Standard Solid Shafts																			Keyed							DIN Splined									
	A	la	B	db	vb	C	lc	D	p	l_2	l_3	l_4	Y_2	Y_3	Y_4	Dy	Z_2	Z_3	Z_4	R	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	de	le	di	li	d2	s2	a	o	code
75	280	22	250	15	12 x 30°	200	14.5	285	40	317	380	380	226	226	276	185	396	459	459	274	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12
85	280	22	250	15	12 x 30°	200	14.5	285	40	317	380	380	226	226	276	185	396	459	459	274	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12
100	280	22	250	15	12 x 30°	120	14.5	285	40	317	380	380	226	226	276	185	396	459	459	274	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12
110	280	22	250	15	12 x 30°	200	14.5	285	40	332	395	395	226	226	276	185	411	474	474	274	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12
130	280	22	250	15	12 x 30°	200	14.5	285	40	332	410	410	226	226	276	185	411	489	489	274	80	130	22	85	110	M20	50	K11	70 x 64	90	50	62	10	72	10	M10	20	3 x 120°	40	X12

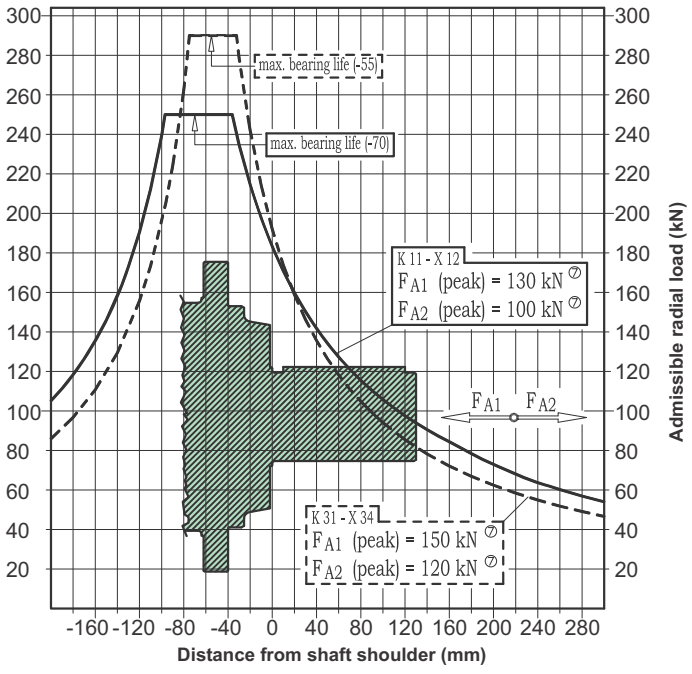
Model	Hollow shafts												Hollow for Shrink Disc													Hollow Splined											
	A	D	l_2	l_3	l_4	Y_2	Y_3	Y_4	Dy	Z_2	Z_3	Z_4	R	la	B	db	vb	C	lc	p	Dp	lp	Dq	lq	Dw	lw	l_{min}	code	la	B	db	vb	C	lc	p	Dz	lz	de	le	di	li	t	code
75	280	285	317	380	380	226	226	276	185	396	459	459	274	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21
85	280	285	317	380	380	226	226	276	185	396	459	459	274	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21
100	280	285	317	380	380	226	226	276	185	396	459	459	274	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21
110	280	285	332	395	395	226	226	276	185	396	474	474	274	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21
130	280	285	332	410	410	226	226	276	185	396	489	489	274	22	250	15	12 x 30°	200	14.5	27	85	90	70	148	110	88	300	P 24	18	260	12.5	10 x 36°	230	7	11	70 x 64	65	74	6	30	5	82	Z 21

Model	Dimensions (US version) Solid Shafts																			Keyed						ANSI Splined									
	A	la	B	db	vb	C	lc	D	p	l_2	l_3	l_4	Y_2	Y_3	Y_4	Dy	Z_2	Z_3	Z_4	R	Dk	lk	bk	hk	wk	code	Dx	lx	ls	do	d3	s3	a	o	code
75	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	317	380	380	226	226	276	185	396	459	459	274	76.2 h7	88.9	19.05	85.1	82.5	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34
85	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	317	380	380	226	226	276	185	396	459	459	274	76.2 h7	88.9	19.05	85.1	82.5	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34
100	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	317	380	380	226	226	276	185	396	459	459	274	76.2 h7	88.9	19.05	85.1	82.5	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34
110	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	332	395	395	226	226	276	185	411	474	474	274	76.2 h7	88.9	19.05	85.1	82.5	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34
130	287	22	256.5	⅝" -11	12 x 30°	209.55	13	285	54.5	332	410	410	226	226	276	185	411	489	489	274	76.2 h7	88.9	19.05	85.1	82.5	K 31	8/16-23T	84.3	56.5	75.7 h12	½"-20	25	2 x 180°	47.6	X 34

E. Koed Christensen A/S

Model	PSR 75	PSR 85	PSR 100	PSR 110	PSR 130
Torque Rating [1]	7500 Nm	8500 Nm	10000 Nm	11000 Nm	13000 Nm
R2	Nom. ratio[2] (Act. rating) 10 (B) 21 (C) 12 (A) 25 (B) 16 (B) 30 (B) 18 (A) 34 (C)	Nom. ratio[2] (Act. rating) 10 (B) 25 (B) 13 (A) 16 (B) 21 (A)	Nom. ratio[2] (Act. rating) 12 (A) 14 (A) 18 (A) 21 (A)	Nom. ratio[2] (Act. rating) 12 (A) 28 (C) 16 (A) 34 (D) 18 (A) 25 (B)	Nom. ratio[2] (Act. rating) 13 (A) 16 (B) 21 (A) 25 (B)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	20/54 kW	20/57 kW	20/60 kW	22.5/66 kW	22.5/72 kW
R3	Nom. ratio[2] (Act. rating) 34 (B) 90 (A) 38 (A) 100 (B) 45 (A) 110 (A) 53 (B) 125 (A) 60 (A) 150 (B) 67 (A) 170 (B) 71 (A) 210 (B) 80 (A) 240 (C)	Nom. ratio[2] (Act. rating) 34 (B) 80 (A) 38 (B) 85 (A) 45 (A) 95 (A) 50 (A) 105 (A) 53 (B) 130 (A) 60 (B) 150 (A) 67 (A) 170 (B) 71 (A)	Nom. ratio[2] (Act. rating) 38 (A) 95 (A) 45 (A) 105 (A) 50 (A) 125 (A) 60 (A) 150 (A) 67 (A) 71 (A) 80 (A) 85 (A)	Nom. ratio[2] (Act. rating) 38 (A) 150 (B) 50 (A) 170 (C) 60 (B) 210 (D) 71 (A) 80 (A) 90 (A) 110 (A) 125 (B)	Nom. ratio[2] (Act. rating) 50 (A) 67 (A) 80 (A) 95 (A) 105 (A) 125 (A) 150 (A) 170 (B)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	14/22 kW	14/23.5 kW	14/25 kW	16/28 kW	16/31 kW
R4	Nom. ratio[2] (Act. rating) 140 (A) 630 (A) 160 (A) 670 (A) 180 (B) 750 (A) 200 (A) 850 (A) 220 (A) 900 (B) 260 (A) 1050 (B) 300 (A) 1250 (B) 340 (A) 1400 (B) 400 (A) 1600 (C) 450 (A) 500 (A) 560 (A)	Nom. ratio[2] (Act. rating) 170 (A) 630 (A) 190 (A) 750 (A) 220 (A) 800 (A) 250 (A) 900 (A) 260 (A) 1000 (A) 300 (A) 1200 (B) 340 (A) 360 (A) 400 (A) 480 (A) 530 (A) 560 (A)	Nom. ratio[2] (Act. rating) 160 (A) 530 (A) 190 (A) 560 (A) 220 (A) 630 (A) 250 (A) 670 (A) 300 (A) 750 (A) 340 (A) 800 (A) 360 (A) 850 (A) 400 (A) 900 (A) 420 (A) 1000 (A) 450 (A) 480 (A) 500 (A)	Nom. ratio[2] (Act. rating) 130 (A) 450 (A) 140 (A) 500 (A) 170 (A) 560 (A) 190 (A) 630 (A) 200 (A) 670 (A) 220 (A) 750 (A) 240 (A) 850 (B) 260 (A) 900 (B) 300 (A) 1050 (B) 340 (A) 1200 (D) 380 (A) 1400 (D) 420 (A)	Nom. ratio[2] (Act. rating) 170 (A) 750 (A) 190 (A) 850 (A) 220 (A) 900 (A) 260 (A) 1000 (A) 300 (A) 1200 (B) 340 (A) 400 (A) 450 (A) 500 (A) 560 (A) 630 (A) 670 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	11/11 kW	11/11.5 kW	11/12 kW	12.5/13.5 kW	12.5/15 kW
Actual Torque Rating (Nm)[4]	(A) 8700 (B) 7800 (C) 6600	(A) 10400 (B) 9400	(A) 12000	(A) 13000 (B) 11700 (C) 10800 (D) 9900	(A) 15000 (B) 13000
Peak Torque[5]	10500 Nm	12000 Nm	13500 Nm	15000 Nm	16000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

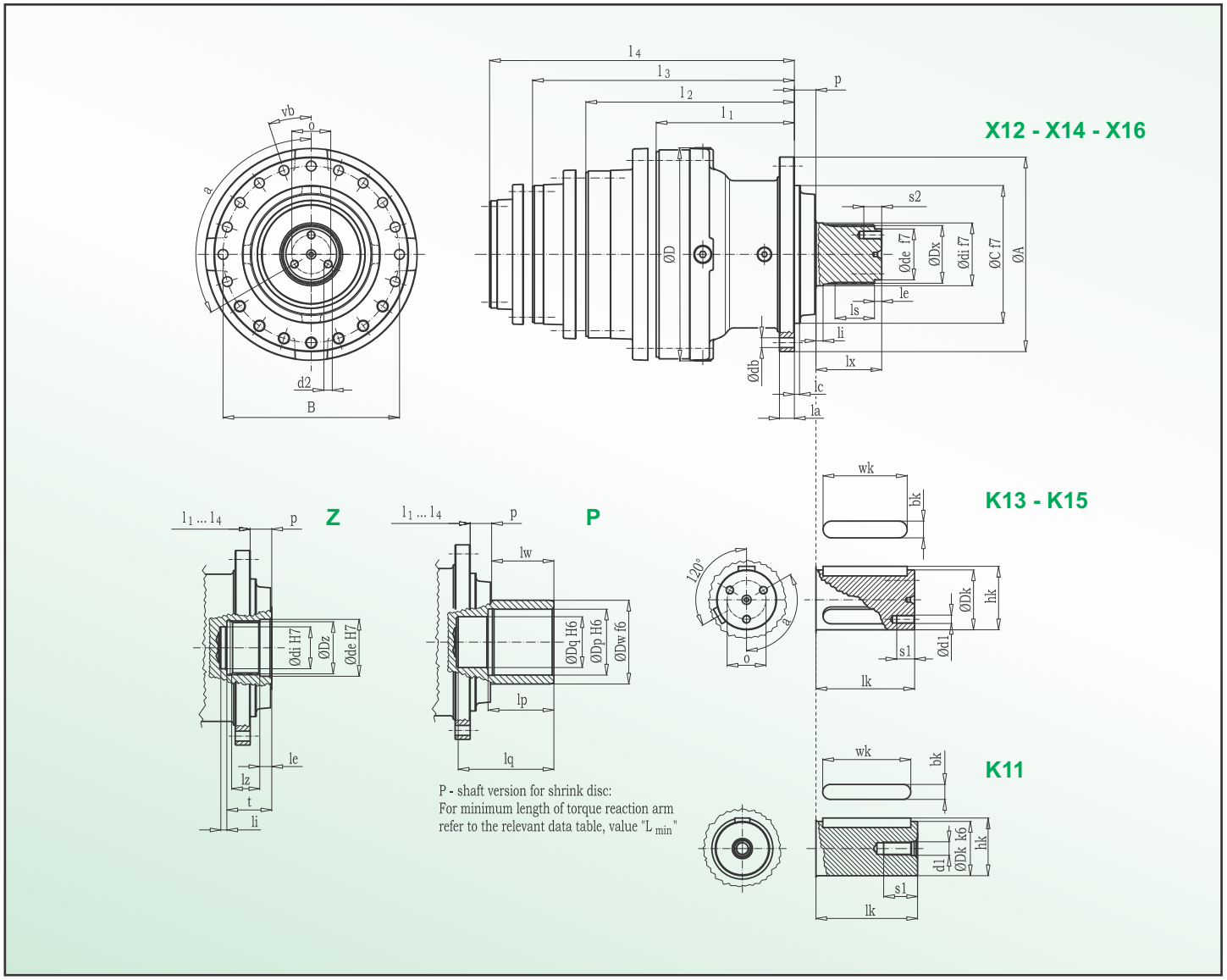
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



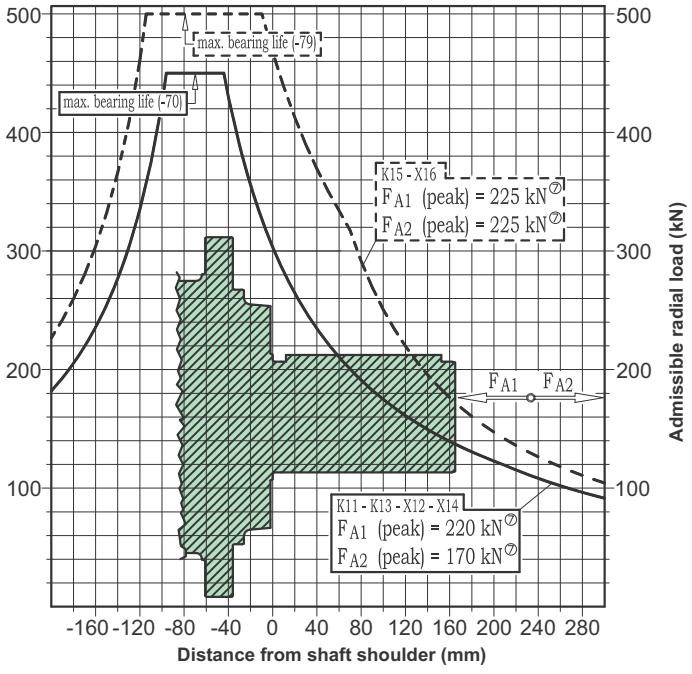
Model	Dimensions (metric) Solid Shafts													Keyed								DIN Splined									
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	di	li	de	le	d2	s2	a	o	code
140	325	25	295	16.5	20 x 18°	230	10	360	36	206	291	345	395	90	170	25	95	150	M20	50	K11	80 x 74	90	50	85	10	70	10	M12	25	3 x 120°	45	X12
170	325	25	295	16.5	20 x 18°	230	10	360	36	206	291	345	395	90	170	25	95	150	M20	50	K11	80 x 74	90	50	85	10	70	10	M12	25	3 x 120°	45	X12
200	325	25	295	16.5	20 x 18°	230	10	360	36	206	290	359	413	100	165	28	106	140	M14 (3)	30	K13	100 x 94	110	66	105	12	85	12	M14	30	3 x 120°	65	X14
220	325	25	295	16.5	20 x 18°	230	10	360	36	226	310	379	433	100	165	28	106	140	M14 (3)	30	K13	100 x 94	110	66	105	12	85	12	M14	30	3 x 120°	65	X14
260	325	25	295	16.5	20 x 18°	230	10	360	36	226	325	394	448	100	165	28	106	140	M14 (3)	30	K13	100 x 94	110	66	105	12	85	12	M14	30	3 x 120°	65	X14

Model	Dimensions Reinforced Solid Shafts													Keyed								DIN Splined									
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	di	li	de	le	d2	s2	a	o	code
140	325	25	295	16.5	20 x 18°	250	20	360	57	206	291	345	395	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	105	12	85	12	M14	30	3 x 120°	65	X16
170	325	25	295	16.5	20 x 18°	250	20	360	57	206	291	345	395	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	105	12	85	12	M14	30	3 x 120°	65	X16
200	325	25	295	16.5	20 x 18°	250	20	360	57	206	290	359	413	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	105	12	85	12	M14	30	3 x 120°	65	X16
220	325	25	295	16.5	20 x 18°	250	20	360	57	226	310	379	433	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	105	12	85	12	M14	30	3 x 120°	65	X16
260	325	25	295	16.5	20 x 18°	250	20	360	57	226	325	394	448	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	105	12	85	12	M14	30	3 x 120°	65	X16

Model	Dimensions (metric) Hollow Shafts													Hollow for Shrink Disc								Hollow Splined							
	A	la	B	db	vb	C	lc	D	p	l_1	l_2	l_3	l_4	Dp	lp	Dq	lq	Dw	lw	L min. of torque arm	code	Dz	lz	de	le	di	li	t	code
140	325	25	295	16.5	20 x 18°	230	10	360	36	206	291	345	395	110	110	85	160	140	104	400	P24	80 x 74	47	85	20	70	10	75	Z 21
170	325	25	295	16.5	20 x 18°	230	10	360	36	206	291	345	395	110	110	85	160	140	104	400	P24	80 x 74	47	85	20	70	10	75	Z 21
200	325	25	295	16.5	20 x 18°	230	10	360	36	206	290	359	413	110	110	85	160	140	104	500	P24	90 x 84	48	95	20	70	10	75	Z 23
220	325	25	295	16.5	20 x 18°	230	10	360	36	226	310	379	433	110	110	85	160	140	104	500	P24	90 x 84	48	95	20	70	10	75	Z 23
260	325	25	295	16.5	20 x 18°	230	10	360	36	206	325	399	448	110	110	85	160	140	104	500	P24	90 x 84	48	95	20	70	10	75	Z 23

Model	PSR 140	PSR 170	PSR 200	PSR 220	PSR 260
Torque Rating [1]	14000 Nm	17000 Nm	20000 Nm	22000 Nm	26000 Nm
L1	Ratio[2] (Act. rating) 3.3 (B)* 5.0 (B) 6.9 (C) 3.8 (A) 6.1 (B) *(on request)	Ratio[2] (Act. rating) 3.3 (B)* 4.3 (A) 5.1 (B) *(on request)	Ratio[2] (Act. rating) 3.7 (A) 4.4 (A)	Ratio[2] (Act. rating) 3.7 (A) 5.8 (C) 5.0 (B) 6.9 (D)	Ratio[2] (Act. rating) 4.3 (A) 5.1 (B)
n_1 nom./max.	2000/3000 rpm	2000/3000 rpm	2000/3000 rpm	1800/2500 rpm	1800/2500 rpm
P th.[3]/max.	30/200 kW	30/210 kW	30/220 kW	37/240 kW	37/265 kW
L2	Nom. ratio[2] (Act. rating) 12 (B)* 30 (A) 14 (A) 36 (A) 19 (A) 42 (A) 22 (A) 48 (B) 26 (A) *(on request)	Nom. ratio[2] (Act. rating) 12 (B)* 30 (A) 14 (A) 36 (B) 19 (B) 22 (A) 26 (A) *(on request)	Nom. ratio[2] (Act. rating) 12 (A) 26 (A) 14 (A) 30 (A) 16 (A) 19 (A) 22 (A)	Nom. ratio[2] (Act. rating) 12 (A) 30 (A) 14 (A) 36 (A) 16 (A) 42 (A) 19 (A) 22 (A)	Nom. ratio[2] (Act. rating) 16 (A) 35 (B) 19 (B) 22 (A) 25 (A) 30 (A)
n_1 nom./max.	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2000/3000 rpm
P th.[3]/max.	13.5/54kW	18.5/95 kW	18.5/100 kW	22/132 kW	22/150 kW
L3	Nom. ratio[2] (Act. rating) 48 (A) 130 (A) 260 (B) 53 (A) 150 (A) 300 (B) 63 (A) 160 (A) 340 (C) 71 (A) 180 (A) 80 (A) 200 (B) 95 (A) 220 (B) 110 (A) 240 (B)	Nom. ratio[2] (Act. rating) 53 (A) 110 (A) 60 (A) 130 (A) 71 (A) 150 (A) 75 (A) 170 (A) 85 (A) 180 (A) 95 (A) 210 (A) 100 (A) 240 (B)	Nom. ratio[2] (Act. rating) 42 (A) 110 (A) 48 (A) 130 (A) 53 (A) 140 (A) 60 (A) 150 (A) 71 (A) 160 (A) 80 (A) 180 (A) 95 (A) 210 (A)	Nom. ratio[2] (Act. rating) 42 (A) 120 (A) 300 (D) 48 (A) 140 (A) 340 (D) 53 (A) 160 (A) 63 (A) 180 (A) 71 (A) 210 (B) 85 (A) 240 (B) 100 (A) 280 (C)	Nom. ratio[2] (Act. rating) 53 (A) 150 (A) 60 (A) 170 (A) 71 (B) 180 (A) 80 (A) 210 (A) 95 (A) 240 (B) 110 (A) 130 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm
P th.[3]/max.	11.5/30 kW	11.5/32 kW	11.5/35kW	15/60 kW	15/65 kW
L4	Nom. ratio[2] (Act. rating) 200 (A) 560 (A) 1100 (A) 240 (A) 600 (A) 1250 (A) 260 (A) 670 (A) 1400 (B) 300 (A) 710 (A) 1500 (B) 320 (A) 750 (A) 1700 (B) 360 (A) 900 (A) 1800 (B) 420 (A) 900 (A) 2000 (B) 480 (A) 1050 (A) 2300 (C)	Nom. ratio[2] (Act. rating) 220 (A) 750 (A) 1700 (B) 280 (A) 850 (A) 320 (A) 950 (A) 380 (A) 1050 (A) 420 (A) 1100 (A) 500 (A) 1250 (A) 560 (A) 1400 (A) 670 (A) 1500 (B)	Nom. ratio[2] (Act. rating) 220 (A) 670 (A) 260 (A) 710 (A) 300 (A) 800 (A) 360 (A) 900 (A) 420 (A) 1050 (A) 480 (A) 1250 (A) 560 (A) 1400 (A) 600 (A)	Nom. ratio[2] (Act. rating) 200 (A) 500 (A) 1250 (A) 240 (A) 600 (A) 1500 (B) 260 (A) 670 (A) 1700 (B) 280 (A) 710 (A) 1900 (C) 320 (A) 800 (A) 2000 (D) 360 (A) 900 (B) 2300 (D) 400 (A) 1000 (A) 450 (A) 1100 (A)	Nom. ratio[2] (Act. rating) 220 (A) 670 (A) 1400 (A) 260 (B) 750 (A) 1500 (B) 300 (A) 850 (A) 1700 (B) 360 (A) 900 (A) 420 (A) 950 (A) 480 (A) 1050 (A) 560 (A) 1200 (A) 600 (A) 1300 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	9/22 kW	9/23 kW	9/24 kW	10/25 kW	10/26.5 kW
Actual Torque Rating (Nm)[4]	(A) 18000 (B) 15000 (C) 13000	(A) 20500 (B) 18000	(A) 24000	(A) 29000 (B) 23000 (C) 21000 (D) 19000	(A) 32000 (B) 29000
Peak Torque[5]	10500 Nm	12000 Nm	13500 Nm	15000 Nm	16000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

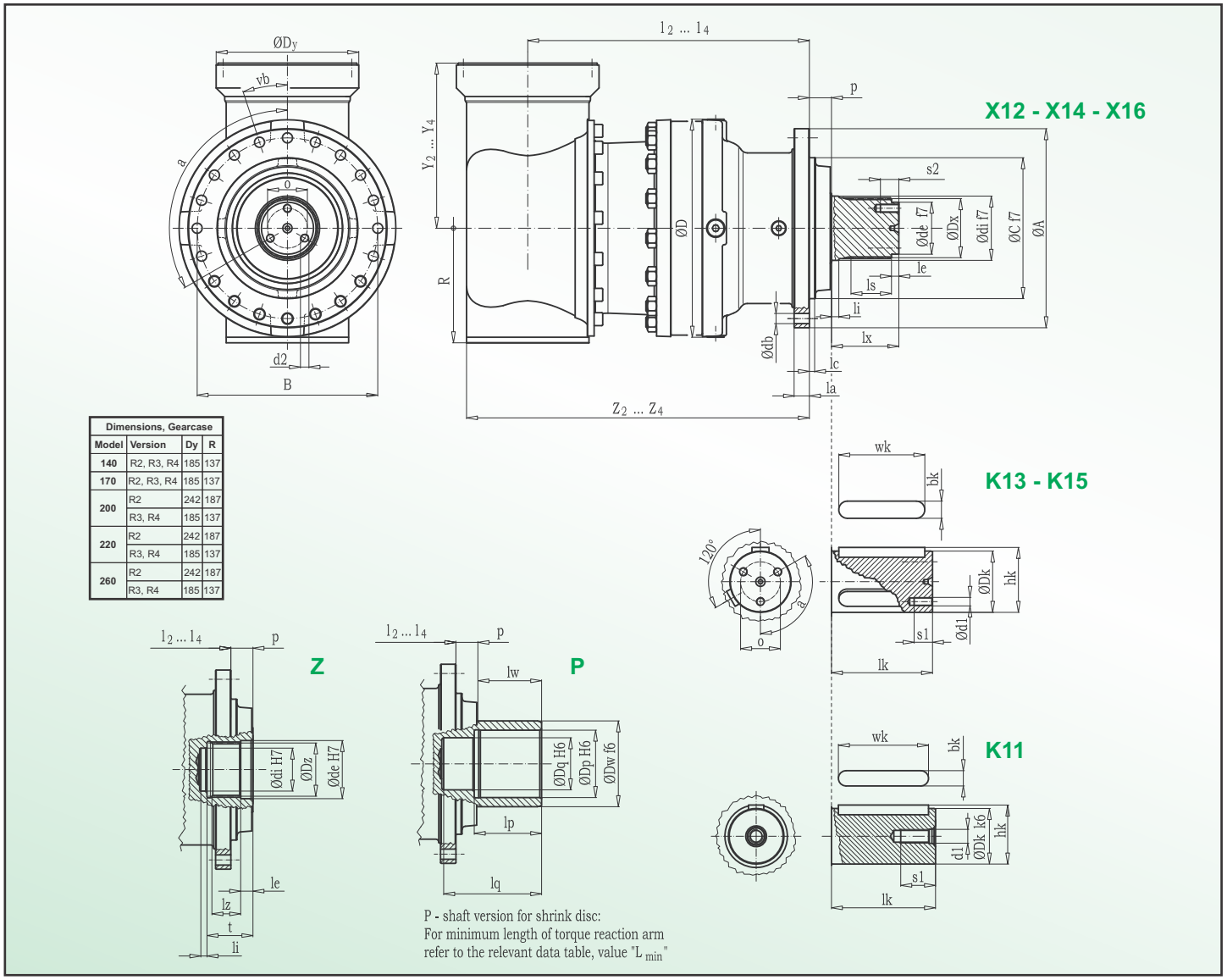
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



Dimensions, Gearcase			
Model	Version	Dy	R
140	R2, R3, R4	185	137
170	R2, R3, R4	185	137
200	R2	242	187
	R3, R4	185	137
220	R2	242	187
	R3, R4	185	137
260	R2	242	187
	R3, R4	185	137

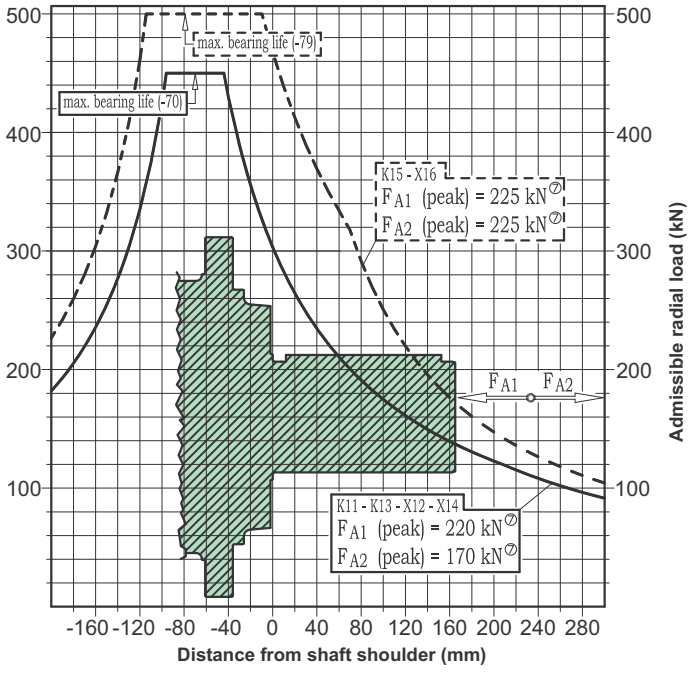
Model	Dimensions Standard Solid Shafts																	Keyed								DIN Splined										
	A	la	B	db	vb	C	lc	D	p	l_2	l_3	l_4	Y_2	Y_3	Y_4	Z_2	Z_3	Z_4	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	de	le	di	li	d2	s2	a	o	code
140	325	25	295	16.5	20 x 18°	230	10	360	36	343	420	420	226	226	276	422	499	499	90	170	25	95	150	M20	50	K11	80 x 74	90	50	70	10	85	10	M12	25	3 x 120°	45	X 12
170	325	25	295	16.5	20 x 18°	230	10	360	36	343	420	420	226	226	276	422	499	499	90	170	25	95	150	M20	50	K11	80 x 74	90	50	70	10	85	10	M12	25	3 x 120°	45	X 12
200	325	25	295	16.5	20 x 18°	230	10	360	36	440	425	488	340	226	226	543	504	567	100	165	28	106	140	M14 (3)	30	K13	100 x 94	110	66	85	12	105	12	M14	30	3 x 120°	65	X 14
220	325	25	295	16.5	20 x 18°	230	10	360	36	460	445	508	340	226	226	563	524	587	100	165	28	106	140	M14 (3)	30	K13	100 x 94	110	66	85	12	105	12	M14	30	3 x 120°	65	X 14
260	325	25	295	16.5	20 x 18°	230	10	360	36	460	460	523	340	226	226	563	539	602	100	165	28	106	140	M14 (3)	30	K13	100 x 94	110	66	85	12	105	12	M14	30	3 x 120°	65	X 14

Model	Dimensions Reinforced Solid Shafts																	Keyed								DIN Splined										
	A	la	B	db	vb	C	lc	D	p	l_2	l_3	l_4	Y_2	Y_3	Y_4	Z_2	Z_3	Z_4	Dk	lk	bk	hk	wk	d1	s1	code	Dx	lx	ls	de	le	di	li	d2	s2	a	o	code
140	325	25	295	16.5	20 x 18°	250	20	360	57	343	420	420	226	226	276	422	499	499	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	85	12	105	12	M14	30	3 x 120°	65	X 16
170	325	25	295	16.5	20 x 18°	250	20	360	57	343	420	420	226	226	276	422	499	499	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	85	12	105	12	M14	30	3 x 120°	65	X 16
200	325	25	295	16.5	20 x 18°	250	20	360	57	440	425	488	340	226	226	543	504	567	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	85	12	105	12	M14	30	3 x 120°	65	X 16
220	325	25	295	16.5	20 x 18°	250	20	360	57	460	445	508	340	226	226	563	524	587	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	85	12	105	12	M14	30	3 x 120°	65	X 16
260	325	25	295	16.5	20 x 18°	250	20	360	57	460	460	523	340	226	226	563	539	602	100	165	28	106	140	M14 (3)	30	K15	100 x 94	110	66	85	12	105	12	M14	30	3 x 120°	65	X 16

Model	Dimensions, (metric) Hollow Shafts																		Hollow for Shrink Disc								Hollow Splined							
	A	la	B	db	vb	C	lc	D	p	l_2	l_3	l_4	Y_2	Y_3	Y_4	Z_2	Z_3	Z_4	Dp	lp	Dq	lq	Dw	lw	code	L min. of torque arm	Dx	lz	de	le	di	li	t	code
140	325	25	295	16.5	20 x 18°	230	10	360	36	343	420	420	226	226	276	422	499	499	110	110	85	160	140	104	P24	400	80 x 74	47	85	20	70	10	75	Z 21
170	325	25	295	16.5	20 x 18°	230	10	360	36	343	420	420	226	226	276	422	499	499	110	110	85	160	140	104	P24	400	80 x 74	47	85	20	70	10	75	Z 21
200	325	25	295	16.5	20 x 18°	230	10	360	36	440	425	488	340	226	226	543	504	567	110	110	85	160	140	104	P24	500	90 x 84	48	95	20	70	10	75	Z 23
200	325	25	295	16.5	20 x 18°	230	10	360	36	460	445	508	340	226	226	563	524	5687	110	110	85	160	140	104	P24	500	90 x 84	48	95	20	70	10	75	Z 23
260	325	25	295	16.5	20 x 18°	230	10	360	36	460	460	523	340	226	226	563	539	602	110	110	85	160	140	104	P24	500	90 x 84	48	95	20	70	10	75	Z 23

Model	PSR 140	PSR 170	PSR 200	PSR 220	PSR 260
Torque Rating [1]	14000 Nm	17000 Nm	20000 Nm	22000 Nm	26000 Nm
R2	Nom. ratio[2] (Act. rating) 10 (B)* 25 (B) 12 (A) 30 (B) 16 (B) 34 (C) 18 (A) *(on request)	Nom. ratio[2] (Act. rating) 10 (B)* 25 (B) 13 (A) 16 (B) 21 (A) *(on request)	Nom. ratio[2] (Act. rating) 12 (A) 14 (A) 18 (A) 21 (A)	Nom. ratio[2] (Act. rating) 12 (A) 28 (C) 16 (A) 34 (D) 18 (A) 25 (B)	Nom. ratio[2] (Act. rating) 13 (A) 16 (B) 21 (A) 25 (B)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	2250/3000 rpm	2250/3000 rpm	3000/4000 rpm
P th.[3]/max.	24/90 kW	24/95 kW	42/132 kW	42/132 kW	42/150 kW
R3	Nom. ratio[2] (Act. rating) 38 (B)* 125 (A) 45 (A) 140 (B) 53 (B)* 150 (B) 60 (A) 170 (B) 67 (A) 200 (B) 80 (A) 240 (C) 90 (A) 105 (A) *(on request)	Nom. ratio[2] (Act. rating) 38 (B)* 170 (B) 50 (A) 67 (A) 80 (A) 95 (A) 105 (A) 125 (A) 150 (A) *(on request)	Nom. ratio[2] (Act. rating) 38 (A) 195 (A) 45 (A) 105 (A) 50 (A) 125 (A) 60 (A) 150 (A) 67 (A) 71 (A) 80 (A) 85 (A)	Nom. ratio[2] (Act. rating) 38 (A) 150 (B) 45 (A) 170 (B) 60 (A) 200 (C) 71 (A) 240 (C) 80 (A) 90 (A) 110 (A) 125 (A)	Nom. ratio[2] (Act. rating) 50 (A) 67 (A) 80 (A) 95 (A) 105 (A) 125 (A) 150 (A) 170 (B)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	15/30 kW	15/32 kW	15/35 kW	19/60 kW	19/65 kW
R4	Nom. ratio[2] (Act. rating) 140 (A) 710 (A) 160 (B) 750 (A) 200 (A) 850 (A) 220 (A) 900 (B) 250 (A) 1000 (B) 300 (A) 1050 (B) 340 (A) 1250 (B) 400 (A) 1400 (B) 450 (A) 1600 (C) 500 (A) 560 (A) 630 (A)	Nom. ratio[2] (Act. rating) 170 (A) 850 (A) 190 (A) 900 (A) 220 (A) 1000 (A) 250 (A) 1200 (B) 300 (A) 340 (A) 400 (A) 450 (A) 480 (A) 530 (A) 630 (A) 750 (A)	Nom. ratio[2] (Act. rating) 160 (A) 530 (A) 190 (A) 560 (A) 220 (A) 630 (A) 250 (A) 670 (A) 300 (A) 750 (A) 340 (A) 800 (A) 360 (A) 850 (A) 400 (A) 900 (A) 420 (A) 1000 (A) 450 (A) 480 (A) 500 (A)	Nom. ratio[2] (Act. rating) 140 (A) 560 (A) 160 (A) 630 (A) 200 (A) 710 (A) 220 (A) 800 (A) 240 (A) 900 (A) 260 (A) 1050 (B) 300 (A) 1200 (B) 340 (A) 1400 (C) 380 (A) 1600 (D) 420 (A) 450 (A) 500 (A)	Nom. ratio[2] (Act. rating) 170 (A) 750 (A) 190 (A) 850 (A) 220 (A) 900 (A) 260 (A) 1000 (A) 300 (A) 1200 (B) 340 (A) 400 (A) 450 (A) 500 (A) 560 (A) 630 (A) 670 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	11.5/22 kW	11.5/23 kW	11.5/24 kW	13/25 kW	13/26.5kW
Actual Torque Rating (Nm)[4]	(A) 18000 (B) 15000 (C) 13000	(A) 20500 (B) 18000	(A) 24000	(A) 29000 (B) 23000 (C) 21000 (D) 19000	(A) 32000 (B) 29000
Peak Torque[5]	22000 Nm	26000 Nm	30000 Nm	33000 Nm	35000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

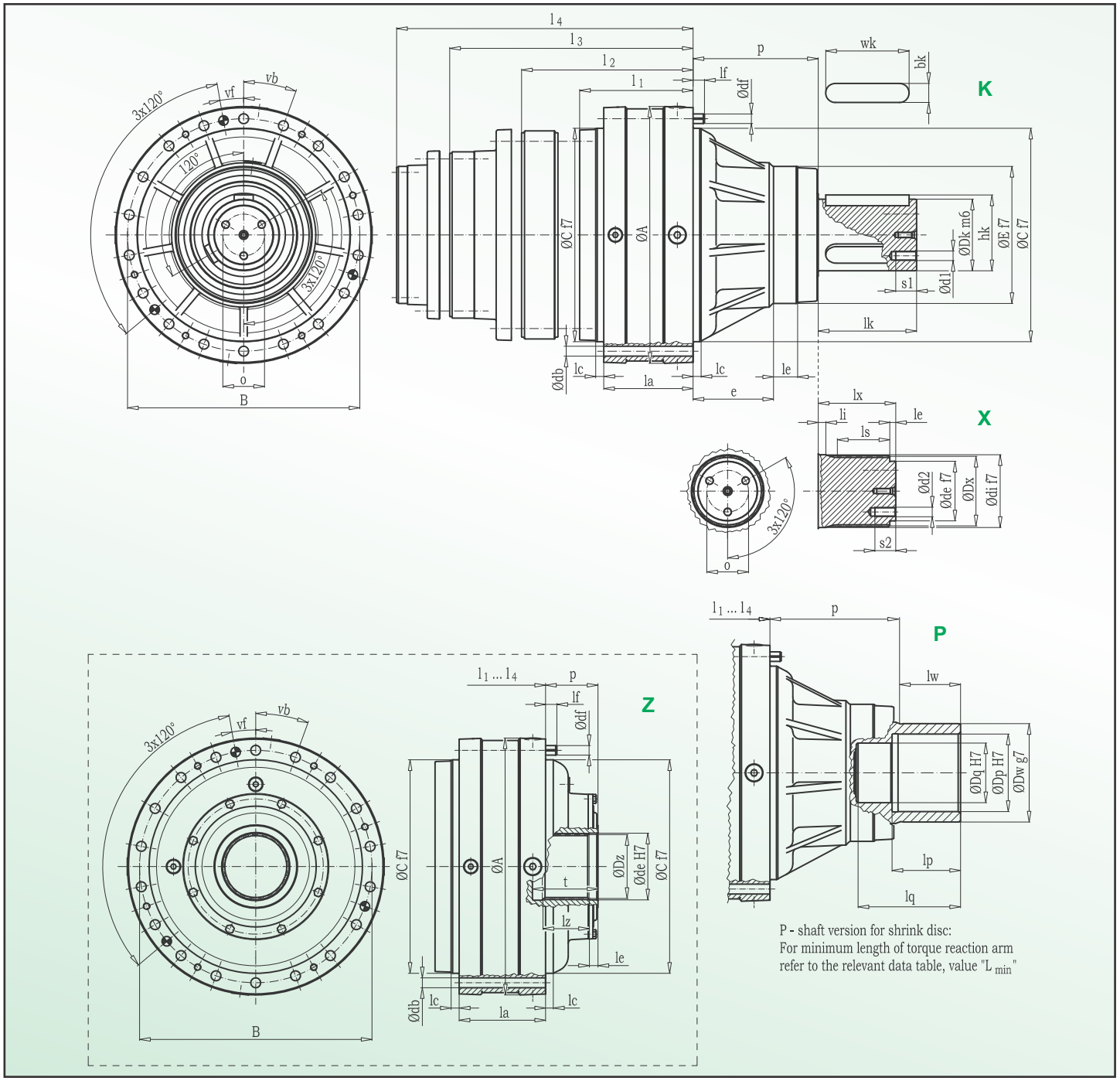
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



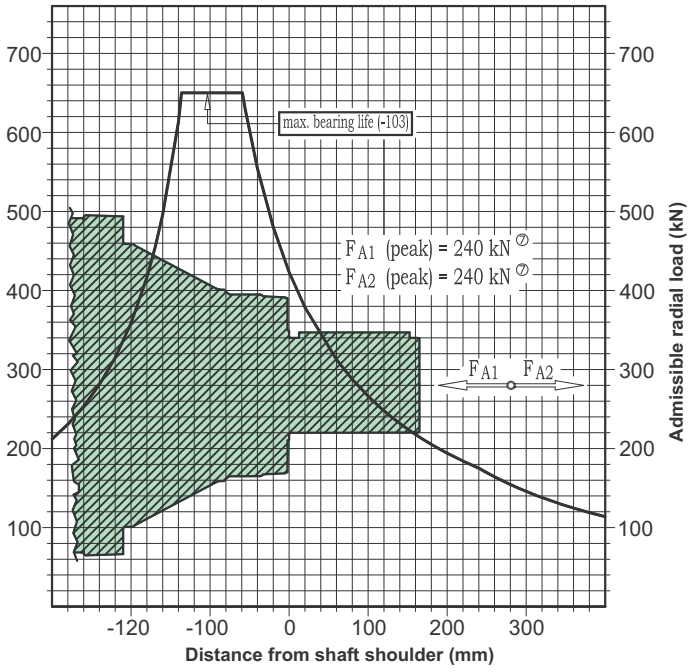
P - shaft version for shrink disc:
For minimum length of torque reaction arm refer to the relevant data table, value "L_{min}"

Model	Dimensions Solid Shafts																	Keyed								DIN Splined									
	A	la	B	db	vb	C	lc	E	le	e	df	lf	vf	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	o	code	Dx	lx	ls	di	li	de	le	d2	s2	o	code
300	432	122	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	154.5	196	265	319	100	165	28	106	140	M14	30	65	K 11	100 x 94	110	66	105	12	85	12	M14	30	65	X 12
360	432	125	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	165.5	197	267	321	100	165	28	106	140	M14	30	65	K 11	100 x 94	110	66	105	12	85	12	M14	30	65	X 12
420	432	125	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	165.5	197	282	336	120	165	32	127	140	M16	35	70	K 13	120 x 3	130	88	122	15	100	10	M16	35	70	X 14
480	432	150	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	190.5	222	307	361	120	165	32	127	140	M16	35	70	K 13	120 x 3	130	88	122	15	100	10	M16	35	70	X 14
560	432	150	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	190.5	242	326	395	120	165	32	127	140	M16	35	70	K 13	120 x 3	130	88	122	15	100	10	M16	35	70	X 14

Model	Dimensions Hollow Shafts									Hollow for Shrink Disc																		Hollow Splined											
	A	B	db	vb	C	lc	df	lf	vf	la	E	le	e	p	l_1	l_2	l_3	l_4	Dp	lp	Dq	lq	Dw	lw	code	L_{min}	la	p	l_1	l_2	l_3	l_4	Dz	lz	de	le	t	code
300	432	390	16.5	18 x 20°	358	13.5	16	19	10°	122	230	40	135	220	154.5	196	265	319	130	115	100	175	165	100	P 24	800	117	88	149.5	191	260	314	100 x 94	78	102	15	110	Z 21
360	432	390	16.5	18 x 20°	358	13.5	16	19	10°	125	230	40	135	220	165.5	197	267	321	130	115	100	175	165	100	P 24	800	120	88	160.5	192	262	316	100 x 94	78	102	15	110	Z 21
420	432	390	16.5	18 x 20°	358	13.5	16	19	10°	125	230	40	135	220	165.5	197	282	336	130	115	100	175	165	100	P 24	800	120	88	160.5	192	277	331	100 x 94	78	102	15	110	Z 21
480	432	390	16.5	18 x 20°	358	13.5	16	19	10°	150	230	40	135	220	190.5	222	307	361	130	115	100	175	165	100	P 24	800	145	88	185.5	217	302	356	110 x 3	78	102	15	110	Z 23
560	432	390	16.5	18 x 20°	358	13.5	16	19	10°	150	230	40	135	220	190.5	242	326	395	130	115	100	175	165	100	P 24	800	145	88	185.5	237	321	390	110 x 3	78	112	15	110	Z 23

Model	PSR 300	PSR 360	PSR 420	PSR 480	PSR 560
Torque Rating [1]	30000 Nm	36000 Nm	42000 Nm	48000 Nm	56000 Nm
L1	Ratio[2] (Act. rating) 3.7 (A) 6.1 (B) 5.0 B) 6.9 (C)	Ratio[2] (Act. rating) 4.3 (A) 5.1 (B)	Ratio[2] (Act. rating) 3.7 (A) 4.4 (A)	Ratio[2] (Act. rating) 3.7 (A) 5.8 (C) 5.0 (B) 6.9 (D)	Ratio[2] (Act. rating) 4.3 (A) 5.1 (B)
n_1 nom./max.	1800/2500 rpm	1800/2500 rpm	1800/2500 rpm	1800/2500 rpm	1500/2000 rpm
P th.[3]/max.	40/280 kW	40/290 kW	40/300 kW	37/240 kW	45/360 kW
L2	Nom. ratio[2] (Act. rating) 14 (A) 36 (B) 19 (A) 42 (B) 22 (A) 48 (C) 26 (A) 30 (B)	Nom. ratio[2] (Act. rating) 14 (A)* 30 (A) 16 (A) 35 (B) 19 (B) 22 (A) 26 (A) *(on request)	Nom. ratio[2] (Act. rating) 12 (A)* 26 (A) 14 (A) 30 (A) 16 (A) 19 (A) 22 (A) *(on request)	Nom. ratio[2] (Act. rating) 12 (A)* 30 (A) 16 (A) 36 (A) 19 (A) 42 (A) 22 (A) 26 (A) *(on request)	Nom. ratio[2] (Act. rating) 16 (A) 35 (B) 19 (B) 22 (A) 25 (A) 30 (A)
n_1 nom./max.	2000/3000 rpm	2000/3000 rpm	2000/3000 rpm	2000/3000 rpm	1800/2500 rpm
P th.[3]/max.	25/150 kW	25/160 kW	25/170 kW	30/200 kW	30/220 kW
L3	Nom. ratio[2] (Act. rating) 48 (A) 130 (A) 260 (B) 53 (A) 150 (A) 300 (B) 63 (A) 160 (A) 340 (C) 71 (A) 180 (A) 80 (A) 200 (B) 95 (A) 220 (B) 110 (A) 240 (B)	Nom. ratio[2] (Act. rating) 53 (A) 150 (A) 63 (B) 160 (A) 71 (A) 180 (A) 80 (A) 210 (B) 95 (A) 110 (A) 130 (A)	Nom. ratio[2] (Act. rating) 53 (A) 130 (A) 60 (A) 150 (A) 71 (A) 160 (A) 80 (A) 180 (A) 85 (A) 210 (A) 95 (A) 110 (A)	Nom. ratio[2] (Act. rating) 60 (A) 160 (A) 71 (A) 180 (B) 80 (A) 210 (B) 85 (A) 250 (C) 95 (A) 300 (D) 110 (A) 130 (A)	Nom. ratio[2] (Act. rating) 53 (A) 150 (A) 60 (A) 170 (A) 71 (B) 180 (A) 80 (A) 210 (A) 95 (A) 240 (B) 110 (A) 130 (A)
n_1 nom./max.	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm
P th.[3]/max.	16/70 kW	16/75 kW	16/80 kW	18.5/90 kW	18.5/100 kW
L4	Nom. ratio[2] (Act. rating) 200 (A) 560 (A) 1100 (A) 240 (A) 600 (A) 1250 (A) 260 (A) 670 (A) 1400 (B) 300 (A) 710 (A) 1500 (B) 320 (A) 750 (A) 1700 (B) 360 (A) 900 (A) 1800 (B) 420 (A) 900 (A) 2000 (B) 480 (A) 1050 (A) 2300 (C)	Nom. ratio[2] (Act. rating) 200 (A) 560 (A) 1500 (B) 240 (A) 670 (A) 260 (A) 750 (A) 300 (A) 800 (B) 360 (A) 900 (A) 380 (A) 1050 (A) 420 (A) 1200 (B) 480 (A) 1300 (A)	Nom. ratio[2] (Act. rating) 220 (A) 600 (A) 260 (A) 670 (A) 300 (A) 750 (A) 320 (A) 800 (A) 360 (A) 900 (A) 420 (A) 1050 (A) 480 (A) 1250 (A) 560 (A) 1400 (A)	Nom. ratio[2] (Act. rating) 200 (A) 500 (A) 900 (A) 220 (A) 530 (A) 1000 (A) 260 (A) 560 (A) 1100 (A) 300 (A) 600 (A) 1200 (B) 320 (A) 670 (A) 1300 (B) 360 (A) 710 (A) 1500 (B) 420 (A) 750 (A) 1700 (C) 480 (A) 800 (A) 2000 (D)	Nom. ratio[2] (Act. rating) 220 (A) 670 (A) 1400 (A) 260 (B) 750 (A) 1500 (B) 300 (A) 850 (A) 1700 (B) 360 (A) 900 (A) 420 (A) 950 (A) 480 (A) 1050 (A) 560 (A) 1200 (A) 600 (A) 1300 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	2800/3800 rpm
P th.[3]/max.	12/28 kW	12/29 kW	12/30 kW	14/31 kW	14/33 kW
Actual Torque Rating (Nm)[4]	(A) 37000 (B) 33000 (C) 28000	(A) 44000 (B) 39000	(A) 51000	(A) 56000 (B) 51000 (C) 47000 (D) 42500	(A) 65000 (B) 58000
Peak Torque[5]	45000 Nm	52000 Nm	58000 Nm	65000 Nm	75000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

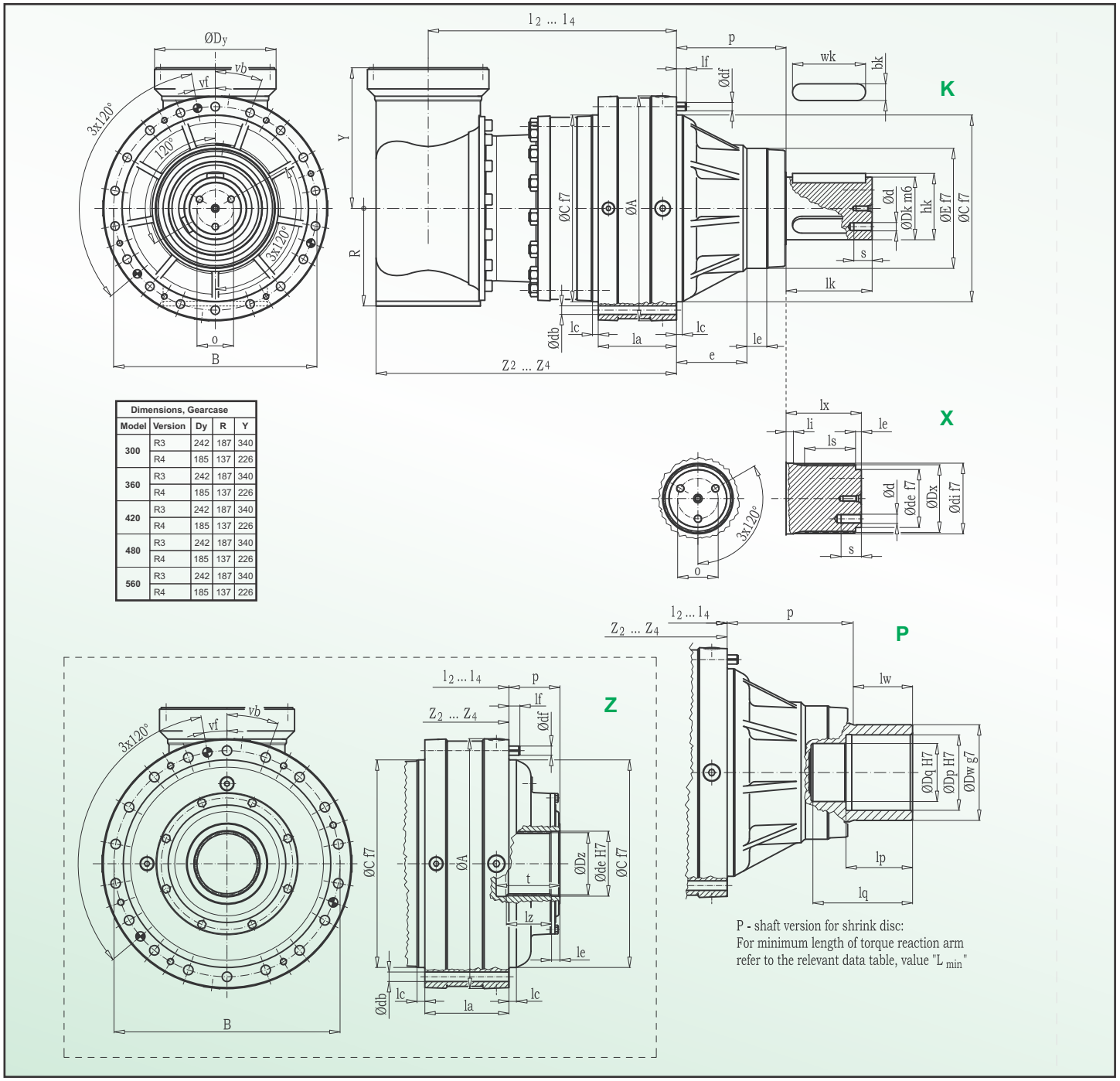
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



Dimensions, Gearcase				
Model	Version	Dy	R	Y
300	R3	242	187	340
	R4	185	137	226
360	R3	242	187	340
	R4	185	137	226
420	R3	242	187	340
	R4	185	137	226
480	R3	242	187	340
	R4	185	137	226
560	R3	242	187	340
	R4	185	137	226

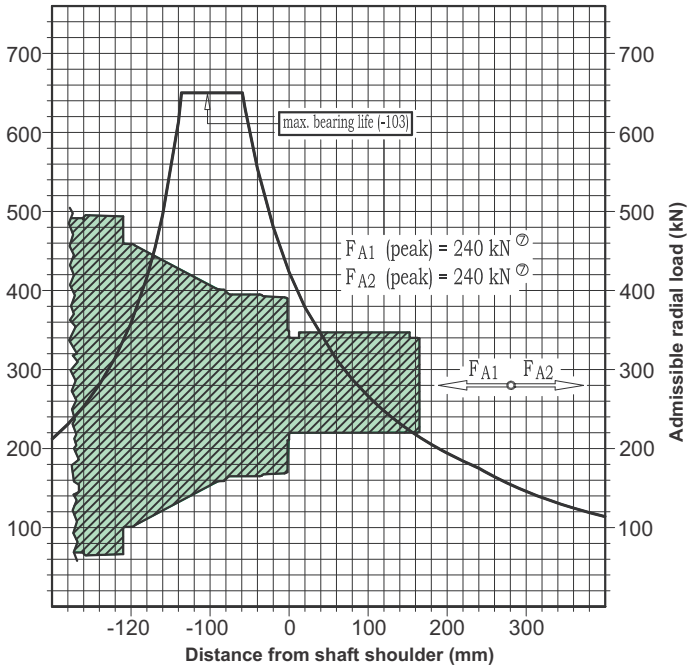
P - shaft version for shrink disc:
For minimum length of torque reaction arm refer to the relevant data table, value "L_{min}"

Model	Dimensions Solid Shafts																					Keyed						DIN Splined							
	A	la	B	db	vb	C	lc	E	le	e	df	lf	vf	p	l_2	l_3	l_4	Z_2	Z_3	Z_4	d	s	o	Dk	lk	bk	hk	wk	code	Dx	lx	ls	di	li	de	le	code
300	432	122	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	331	331	394	434	410	473	M14	30	65	100	165	28	106	140	K11	100 x 94	110	66	105	12	85	12	X 12
360	432	122	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	331	334	396	434	413	475	M14	30	65	100	165	28	106	140	K11	100 x 94	110	66	105	12	85	12	X 12
420	432	122	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	331	334	411	434	413	490	M16	35	70	120	165	32	127	140	K13	120 x 3	130	88	122	15	100	10	X 14
480	432	150	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	356	359	436	459	438	515	M16	35	70	120	165	32	127	140	K13	120 x 3	130	88	122	15	100	10	X 14
560	432	150	390	16.5	18 x 20°	358	13.5	230	40	135	16	19	10°	210	356	476	461	459	438	540	M16	35	70	120	165	32	127	140	K13	120 x 3	130	88	122	15	100	10	X 14

Model	Dimensions Hollow Shafts									Hollow for Shrink Disc																				Hollow Splined										
	A	B	db	vb	C	lc	df	lf	vf	la	E	le	e	p	l_2	l_3	l_4	Z_2	Z_3	Z_4	Dp	lp	Dq	lq	Dw	lw	code	L_{min}	la	p	l_2	l_3	l_4	Z_2	Z_3	Z_4	Dz	lz	de	le	t	code
300	432	390	16.5	18 x 20°	358	13.5	16	19	10°	122	230	40	135	220	326	326	389	429	405	468	130	115	100	175	165	100	P 24	800	117	88	326	326	389	429	405	468	100 x 94	78	102	15	110	Z 21
360	432	390	16.5	18 x 20°	358	13.5	16	19	10°	125	230	40	135	220	326	329	391	429	408	470	130	115	100	175	165	100	P 24	800	120	88	326	329	391	429	408	470	100 x 94	78	102	15	110	Z 21
420	432	390	16.5	18 x 20°	358	13.5	16	19	10°	125	230	40	135	220	326	329	406	429	408	485	130	115	100	175	165	100	P 24	800	120	88	326	329	406	429	408	485	100 x 94	78	102	15	110	Z 21
480	432	390	16.5	18 x 20°	358	13.5	16	19	10°	150	230	40	135	220	351	354	431	454	433	510	130	115	100	175	165	100	P 24	800	145	88	351	354	431	454	433	510	110 x 3	78	112	15	110	Z 23
560	432	390	16.5	18 x 20°	358	13.5	16	19	10°	150	230	40	135	220	351	471	455	454	574	535	130	115	100	175	165	100	P 24	800	145	88	351	471	456	454	574	535	110 x 3	78	112	15	110	Z 23

Model	PSR 300	PSR 360	PSR 420	PSR 480	PSR 560
Torque Rating [1]	30000 Nm	36000 Nm	42000 Nm	48000 Nm	56000 Nm
R2	Nom. ratio[2] (Act. rating) 12 (A) 25 (B) 16 (B) 30 (B) 18 (A) 34 (C) 21 (C)	Nom. ratio[2] (Act. rating) 13 (A) 16 (B) 21 (A) 25 (B)	Nom. ratio[2] (Act. rating) 12 (A) 14 (A) 18 (A) 21 (A)	Nom. ratio[2] (Act. rating) 16 (B) 25 (B) 28 (C) 34 (D)	Nom. ratio[2] (Act. rating) 16 (B)
n_1 nom./max.	2250/3000 rpm	2250/3000 rpm	2250/3000 rpm	2250/3000 rpm	2250/3000 rpm
P th.[3]/max.	37/150 kW	37/160 kW	37/170 kW	45/200 kW	42/220 kW
R3	Nom. ratio[2] (Act. rating) 42 (A) 140 (B) 60 (A) 150 (B) 67 (A) 170 (B) 71 (B) 210 (B) 80 (A) 240 (C) 90 (A) 105 (A) 125 (A)	Nom. ratio[2] (Act. rating) 50 (A) 67 (A) 80 (A) 95 (A) 105 (A) 130 (A) 150 (A) 170 (B)	Nom. ratio[2] (Act. rating) 38 (A) 110 (A) 50 (A) 125 (A) 60 (A) 150 (A) 67 (A) 71 (A) 80 (A) 95 (A) 105 (A)	Nom. ratio[2] (Act. rating) 50 (A) 60 (A) 71 (A) 80 (A) 90 (A) 110 (A) 170 (C) 210 (D)	Nom. ratio[2] (Act. rating) 50 (A) 67 (A) 80 (A) 95 (A) 105 (A) 125 (A) 150 (A) 170 (B)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	2250/3000 rpm
P th.[3]/max.	19/70 kW	19/75 kW	19/80 kW	22/90 kW	28/100 kW
R4	Nom. ratio[2] (Act. rating) 140 (A) 560 (A) 160 (B) 630 (A) 200 (A) 710 (A) 220 (A) 800 (A) 250 (A) 900 (A) 260 (A) 1000 (B) 300 (A) 1050 (B) 340 (A) 1200 (B) 360 (A) 1250 (B) 400 (A) 1400 (B) 450 (A) 1600 (C) 500 (A)	Nom. ratio[2] (Act. rating) 170 (A) 710 (A) 200 (A) 800 (A) 220 (A) 900 (A) 250 (A) 1050 (B) 280 (A) 320 (A) 360 (A) 400 (A) 450 (A) 500 (A) 560 (A) 630 (A)	Nom. ratio[2] (Act. rating) 160 (A) 710 (A) 190 (A) 800 (A) 220 (A) 900 (A) 260 (A) 1000 (A) 300 (A) 340 (A) 360 (A) 400 (A) 450 (A) 500 (A) 560 (A) 630 (A)	Nom. ratio[2] (Act. rating) 190 (A) 1050 (B) 220 (A) 1200 (C) 260 (A) 1400 (D) 300 (A) 340 (A) 360 (A) 400 (A) 450 (A) 500 (A) 560 (A) 670 (A) 800 (A)	Nom. ratio[2] (Act. rating) 170 (A) 670 (A) 190 (A) 710 (B) 220 (A) 750 (A) 250 (A) 850 (A) 300 (A) 900 (A) 340 (A) 1000 (A) 360 (A) 1050 (B) 420 (A) 1200 (B) 480 (A) 530 (A) 560 (A) 630 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	15/28 kW	15/29 kW	15/30 kW	17/31 kW	17/33 kW
Actual Torque Rating (Nm)[4]	(A) 37000 (B) 33000 (C) 28000	(A) 44000 (B) 39000	(A) 51000	(A) 56000 (B) 51000 (C) 47000 (D) 42500	(A) 65000 (B) 58000
Peak Torque[5]	45000 Nm	52000 Nm	58000 Nm	65000 Nm	75000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

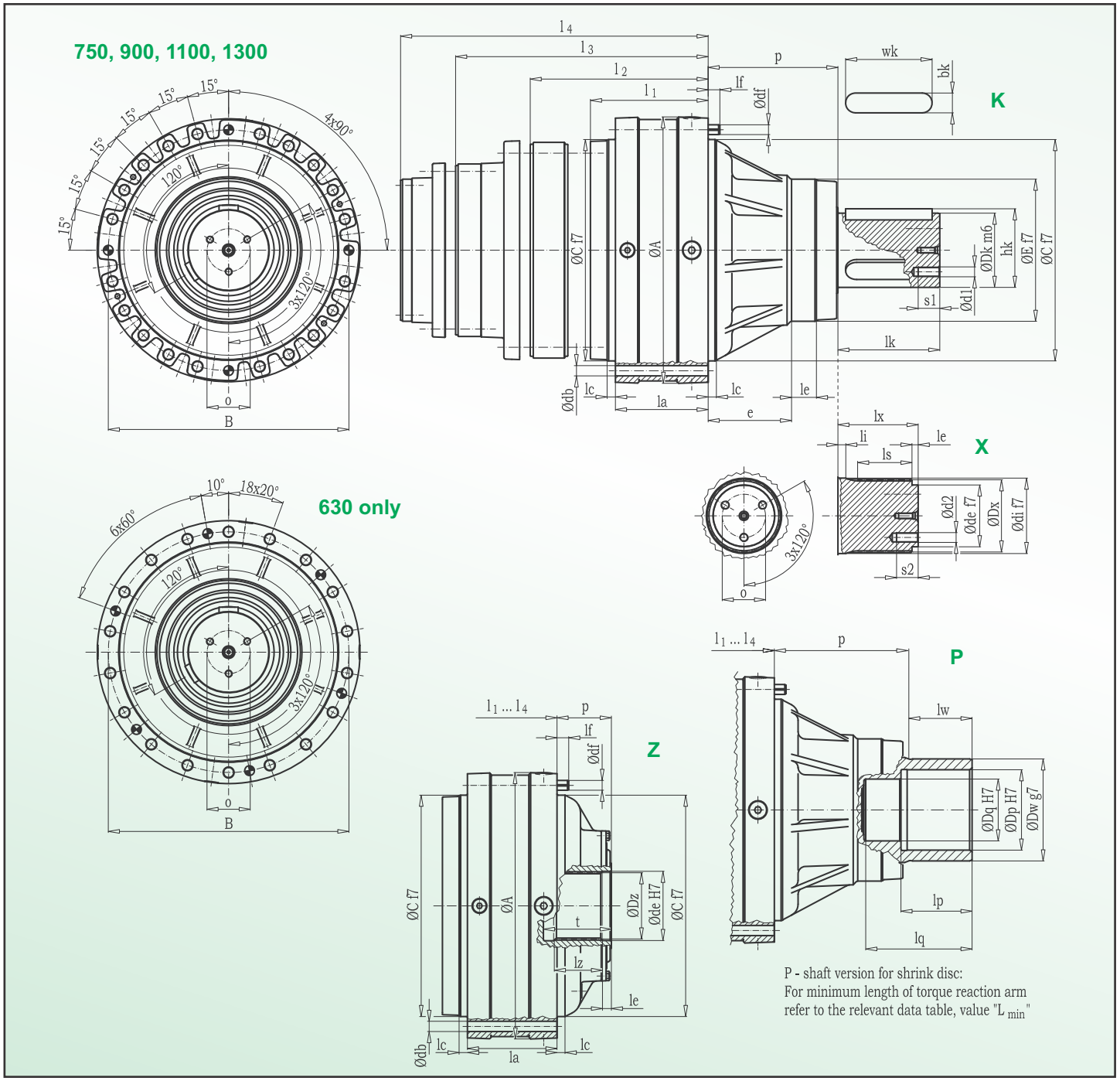
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



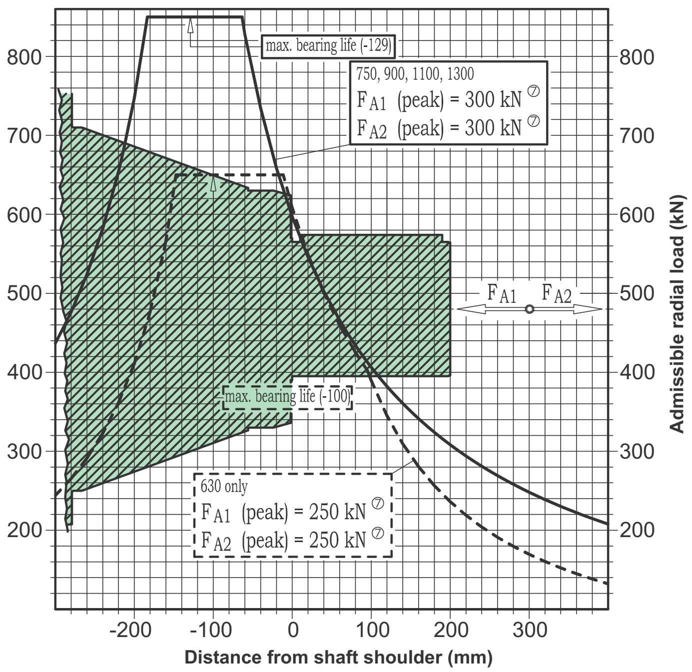
Model	Dimensions Solid Shafts																Keyed									DIN Splined								
	A	la	B	db	C	lc	E	le	e	df	lf	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	o	code	Dx	lx	ls	di	li	de	le	d2	s2	o	code
630	460	152	415	19	385	13	260	38	152	16	20	227	190.5	242	326	395	130	170	32	137	160	M16	35	70	K 11	130 x 3	130	88	132	15	110	10	M16	35	70	X 12
750	550	154	503	21	460	13.5	300	30	224	20	25	279	216	320.5	362	431	150	200	36	158	180	M16	35	70	K 11	150 x 5	150	107	151	15	125	12	M16	35	70	X 12
900	550	154	503	21	460	13.5	300	30	224	20	25	279	216	320.5	362	431	150	200	36	158	180	M16	35	70	K 11	150 x 5	150	107	151	15	125	12	M16	35	70	X 12
1100	550	184	503	21	460	13.5	300	30	224	20	25	279	246	386.5	418	488	170	200	40	179	180	M16	35	90	K 13	170 x 5	170	120	171	15	145	12	M16	35	90	X 14
1300	550	184	503	21	460	13.5	300	30	224	20	25	279	246	386.5	418	488	170	200	40	179	180	M16	35	90	K 13	170 x 5	170	120	171	15	145	12	M16	35	90	X 14

Model	Dimensions Hollow Shafts							Hollow for Shrink Disc																	Hollow Splined											
	A	B	db	C	lc	df	lf	la	E	le	e	p	l_1	l_2	l_3	l_4	Dp	lp	Dq	lq	Dw	lw	code	L_{min}	la	p	l_1	l_2	l_3	l_4	Dz	lz	de	le	t	code
630	460	415	19	385	13	16	20	152	260	38	152	237	190.5	242	326	395	140	145	110	202	185	125	P 22	900	152	81	190.5	242	326	395	130 x 3	70	132	30	110	Z 21
750	550	503	21	460	13.5	20	25	154	300	30	224	287	216	320.5	362	431	160	160	130	227	200	140	P 22	1100	154	98	216	320.5	362	431	150 x 5	90	152	20	120	Z 21
900	550	503	21	460	13.5	20	25	154	300	30	224	287	216	320.5	362	431	160	160	130	227	200	140	P 22	1100	154	98	216	320.5	362	431	150 x 5	90	152	20	120	Z 21
1100	550	503	21	460	13.5	20	25	184	300	30	224	287	246	386.5	418	488	170	170	130	247	220	150	P 24	1100	184	98	246	386.5	418	488	160 x 5	93	162	20	120	Z 23
1300	550	503	21	460	13.5	20	25	184	300	30	224	287	246	386.5	418	488	170	170	130	247	220	150	P 24	1100	184	98	246	386.5	418	488	160 x 5	93	162	20	120	Z 23

jbj TECHNIQUES LIMITED | E. KOED CHRISTENSEN A/S

Model	PSR 630	PSR 750	PSR 900	PSR 1100	PSR 1300
Torque Rating (1)	63000 Nm	75000 Nm	90000 Nm	110000 Nm	130000 Nm
L1	Ratio(2) (Act. rating) 4.5 (A)	Ratio(2) (Act. rating) 3.4 (B) 4.1 (A) 5.3 (B)	Ratio(2) (Act. rating) 3.4 (B) 4.1 (A) 5.3 (B)	Ratio(2) (Act. rating) 3.4 (B) 4.1 (A) 5.3 (B)	Ratio(2) (Act. rating) 3.4 (B) 4.1 (A) 5.3 (B)
n_1 nom./max.	1200/1700 rpm	900/1200 rpm	850/1200 rpm	800/1000 rpm	750/1000 rpm
P th.(3)/max.	50/370 kW	64/390 kW	70/440 kW	80/515 kW	88/620kW
L2	Nom. ratio(2) (Act. rating) 17 (A) 22 (A) 26 (A) 32 (A)	Nom. ratio(2) (Act. rating) 13 (B) 28 (A) 15 (A) 32 (B) 17 (B) 36 (B) 21 (A) 25 (A)	Nom. ratio(2) (Act. rating) 13 (B) 28 (A) 15 (A) 32 (B) 17 (B) 36 (B) 21 (A) 25 (A)	Nom. ratio(2) (Act. rating) 13 (B) 28 (A) 15 (A) 32 (B) 17 (B) 36 (B) 21 (A) 25 (A)	Nom. ratio(2) (Act. rating) 13 (B) 28 (A) 15 (A) 32 (B) 17 (B) 36 (B) 21 (A) 25 (A)
n_1 nom./max.	1800/2500 rpm	1800/2500 rpm	1800/2500 rpm	1500/2000rpm	1500/2000rpm
P th.(3)/max.	33/230 kW	44/280 kW	48/290 kW	55/330 kW	60/360 kW
L3	Nom. ratio(2) (Act. rating) 56 (A) 140 (A) 63 (A) 160 (A) 75 (A) 180 (A) 85 (A) 190 (A) 100 (A) 220 (A) 120 (A) 130 (A)	Nom. ratio(2) (Act. rating) 48 (A) 130 (A) 56 (B) 140 (A) 63 (A) 160 (A) 80 (A) 170 (A) 95 (A) 200 (A) 105 (A) 220 (B) 120 (A) 250 (B)	Nom. ratio(2) (Act. rating) 48 (A) 130 (A) 56 (B) 140 (A) 63 (A) 160 (A) 80 (A) 170 (A) 95 (A) 200 (A) 105 (A) 220 (B) 120 (A) 250 (B)	Nom. ratio(2) (Act. rating) 42 (B)* 120 (A) 48 (B) 140 (A) 56 (A) 170 (A) 67 (B) 200 (A) 80 (A) 220 (B) 90 (A) 220 (B) 105 (A) *(on request)	Nom. ratio(2) (Act. rating) 42 (B)* 120 (A) 48 (B) 140 (A) 56 (A) 170 (A) 67 (B) 200 (A) 80 (A) 220 (B) 90 (A) 220 (B) 105 (A) *(on request)
n_1 nom./max.	2800/3800 rpm	2000/3000 rpm	2000/3000 rpm	2000/3000 rpm	2000/3000 rpm
P th.(3)/max.	20/110 kW	28/150 kW	32/160 kW	35/200 kW	39/220 kW
L4	Nom. ratio(2) (Act. rating) 240 (A) 710 (A) 280 (A) 800 (A) 320 (A) 900 (A) 360 (A) 1000 (A) 420 (A) 1100 (A) 480 (A) 1250 (A) 530 (A) 1500 (A) 600 (A)	Nom. ratio(2) (Act. rating) 220 (A) 600 (A) 1200 (A) 260 (A) 670 (A) 1400 (A) 300 (A) 710 (A) 1500 (B) 340 (A) 800 (A) 1700 (B) 400 (A) 850 (A) 450 (A) 900 (A) 480 (A) 1000 (B) 530 (A) 1100 (A)	Nom. ratio(2) (Act. rating) 220 (A) 600 (A) 1200 (A) 260 (A) 670 (A) 1400 (A) 300 (A) 710 (A) 1500 (B) 340 (A) 800 (A) 1700 (B) 400 (A) 850 (A) 450 (A) 900 (A) 480 (A) 1000 (B) 530 (A) 1100 (A)	Nom. ratio(2) (Act. rating) 220 (A) 600 (A) 1200 (A) 260 (A) 670 (A) 1400 (A) 300 (A) 710 (A) 1500 (B) 340 (A) 800 (A) 1700 (B) 400 (A) 850 (A) 450 (A) 900 (A) 480 (A) 1000 (B) 530 (A) 1100 (A)	Nom. ratio(2) (Act. rating) 250 (A) 670 (A) 1300 (B) 300 (A) 710 (A) 1500 (B) 340 (A) 800 (A) 400 (A) 850 (A) 450 (A) 900 (A) 480 (A) 1000 (A) 530 (A) 1050 (A) 600 (A) 1200 (A)
n_1 nom./max.	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm
P th.(3)/max.	16/37 kW	22/63 kW	24/70 kW	27/90 kW	30/100 kW
Actual Torque Rating (Nm)(4)	(A) 73000	(A) 94000 (B) 79000	(A) 110000 (B) 95000	(A) 133000 (B) 112000	(A) 160000 (B) 135000
Peak Torque(5)	100000 Nm	140000 Nm	160000 Nm	190000 Nm	215000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

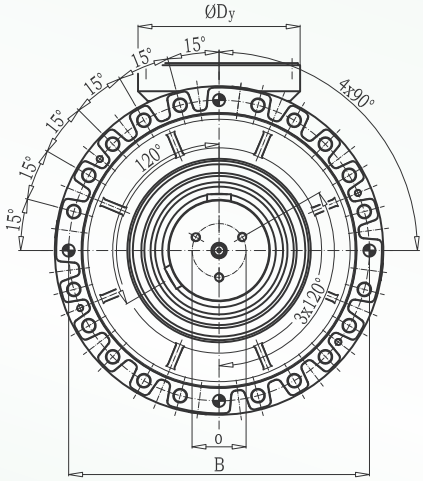
(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

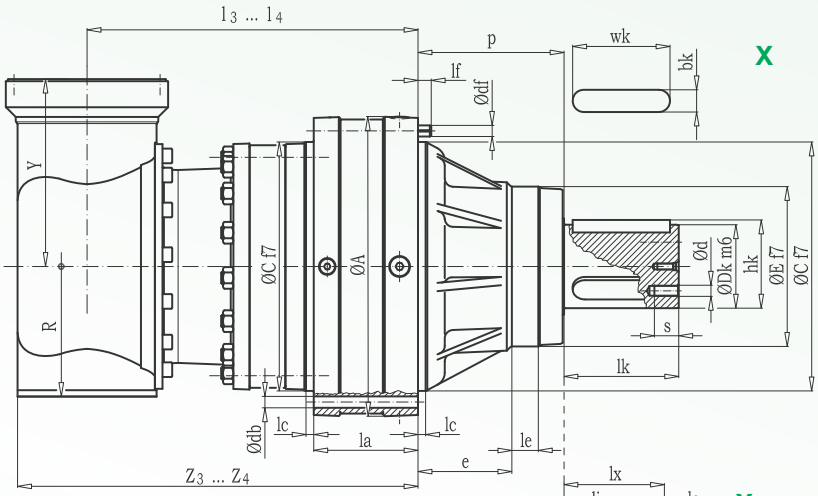
$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$

jbj TECHNIQUES LIMITED

E. KOED CHRISTENSEN A/S

750, 900, 1100, 1300





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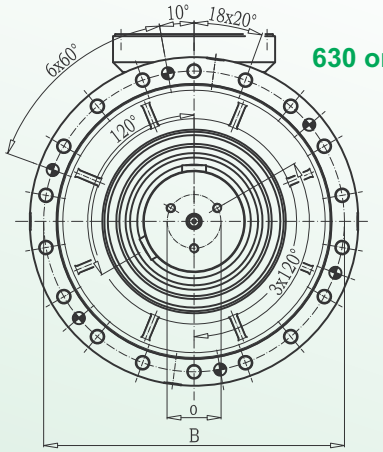
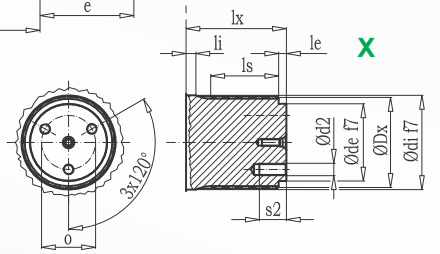
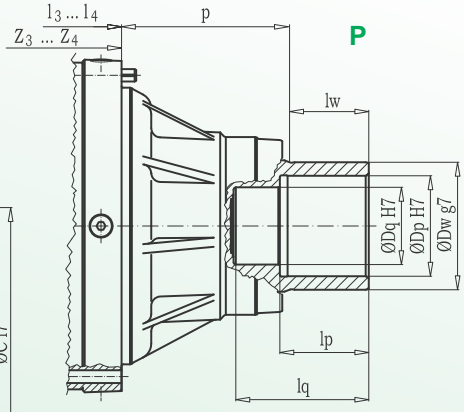
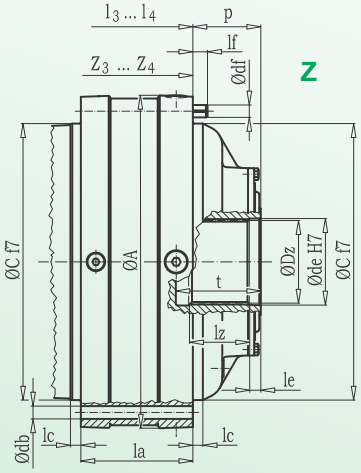


Dimensions, Gearcase				
Model	Version	Dy	R	Y
630	R3	242	187	340
	R4	185	137	226
750	R3	242	187	340
	R4	185	137	226
900	R3	242	187	340
	R4	185	137	226
1100	R3	242	187	340
	R4	185	137	226
1300	R3	242	187	340
	R4	185	137	226





P - shaft version for shrink disc:
For minimum length of torque reaction arm refer to the relevant data table, value "L_{min}"

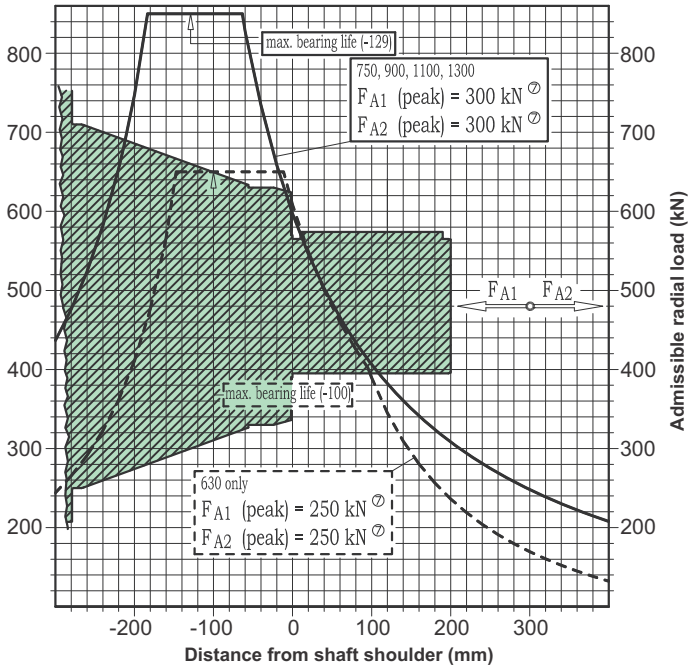


Model	Dimensions Solid Shafts																Keyed									Splined									
	A	la	B	db	C	lc	E	le	e	df	lf	p	l_3	l_4	Z_3	Z_4	Dk	lk	bk	hk	wk	d1	s1	o	code	Dx	lx	ls	di	li	de	le	d2	s2	o	code
630	460	152	415	19	385	13	260	38	152	16	20	227	471	455	574	535	130	170	32	137	160	M16	35	70	K 11	130 x 3	130	88	132	15	110	10	M16	35	70	X 12
750	550	154	503	21	460	13.5	300	30	224	20	25	279	497	497	600	576	150	200	36	158	180	M16	35	70	K 11	150 x 5	150	107	151	15	125	12	M16	35	70	X 12
900	550	154	503	21	460	13.5	300	30	224	20	25	279	497	497	600	576	150	200	36	158	180	M16	35	70	K 11	150 x 5	150	107	151	15	125	12	M16	35	70	X 12
1100	550	184	503	21	460	13.5	300	30	224	20	25	279	552	555	655	634	170	200	40	179	180	M16	35	90	K 13	170 x 5	170	120	171	15	145	12	M16	35	90	X 14
1300	550	184	503	21	460	13.5	300	30	224	20	25	279	552	555	655	634	170	200	40	179	180	M16	35	90	K 13	170 x 5	170	120	171	15	145	12	M16	35	90	X 14

Model	Dimensions Hollow Shafts							Hollow for Shrink Disc																	Hollow Splined											
	A	B	db	C	lc	df	lf	la	E	le	e	p	l_3	l_4	Z_3	Z_4	Dp	lp	Dq	lq	Dw	lw	code	L_{min}	la	p	l_3	l_4	Z_3	Z_4	Dz	lz	de	le	t	code
630	460	415	19	385	13	16	20	152	260	38	152	237	471	455	574	535	140	145	110	202	185	125	P 22	900	152	81	471	455	574	535	130 x 3	70	132	30	110	Z 21
750	550	503	21	460	13.5	20	25	154	300	30	224	287	497	497	600	576	160	160	130	227	200	140	P 22	1100	154	98	497	497	600	576	150 x 5	90	152	20	120	Z 21
900	550	503	21	460	13.5	20	25	154	300	30	224	287	497	497	600	576	160	160	130	227	200	140	P 22	1100	154	98	497	497	600	576	150 x 5	90	152	20	120	Z 21
1100	550	503	21	460	13.5	20	25	184	300	30	224	287	552	555	655	634	170	170	130	247	220	150	P 24	1100	184	98	552	555	655	634	160 x 5	93	162	20	120	Z 23
1300	550	503	21	460	13.5	20	25	184	300	30	224	287	552	555	655	634	170	170	130	247	220	150	P 24	1100	184	98	552	555	655	634	160 x 5	93	162	20	120	Z 23

Model	PSR 630	PSR 750	PSR 900	PSR 1100	PSR 1300
Torque Rating [1]	63000 Nm	75000 Nm	90000 Nm	110000 Nm	130000 Nm
R2	Nom. ratio[2] (Act. rating)	Nom. ratio[2] (Act. rating)	Nom. ratio[2] (Act. rating)	Nom. ratio[2] (Act. rating)	Nom. ratio[2] (Act. rating)
n_1 nom./max.					
P th.[3]/max.					
R3	Nom. ratio[2] (Act. rating) 53 (A) 71 (A) 80 (A) 95 (A) 110 (A) 130 (A) 150 (A)	Nom. ratio[2] (Act. rating) 40 (A) 100 (A) 45 (A) 110 (B) 53 (A) 120 (A) 60 (A) 140 (A) 63 (A) 160 (B) 75 (A) 180 (B) 80 (A) 90 (A)	Nom. ratio[2] (Act. rating) 40 (B) 100 (A) 45 (A) 110 (B) 53 (B) 120 (A) 60 (B) 140 (A) 63 (A) 150 (B) 75 (A) 180 (B) 80 (B) 90 (A)	Nom. ratio[2] (Act. rating) 40 (B) 100 (A) 45 (A) 110 (B) 53 (B) 120 (A) 60 (B) 140 (A) 63 (A) 150 (B) 75 (A) 180 (B) 80 (B) 90 (A)	Nom. ratio[2] (Act. rating) 53 (B) 140 (A) 60 (B) 150 (B) 63 (A) 180 (B) 75 (A) 80 (B) 90 (A) 95 (B) 120 (A)
n_1 nom./max.	2250/3000 rpm	2250/3000 rpm	2250/3000 rpm	2250/3000 rpm	2250/3000 rpm
P th.[3]/max.	28/110 kW	37/150 kW	41/160 kW	45/200 kW	50/220 kW
R4	Nom. ratio[2] (Act. rating) 170 (A) 1050 (A) 200 (B) 240 (A) 280 (A) 320 (A) 360 (A) 420 (A) 480 (A) 560 (A) 630 (A) 750 (A) 900 (A)	Nom. ratio[2] (Act. rating) 150 (A) 630 (A) 180 (A) 710 (A) 200 (A) 750 (B) 240 (A) 850 (A) 280 (A) 950 (A) 320 (A) 1100 (B) 360 (A) 1200 (B) 400 (A) 450 (A) 500 (A) 560 (A) 630 (A)	Nom. ratio[2] (Act. rating) 150 (A) 710 (A) 180 (A) 800 (A) 200 (A) 900 (A) 240 (A) 1000 (A) 280 (A) 320 (A) 360 (A) 400 (A) 450 (A) 500 (A) 530 (A) 600 (A)	Nom. ratio[2] (Act. rating) 180 (A) 710 (A) 200 (B) 750 (B) 240 (A) 850 (A) 280 (A) 950 (A) 320 (A) 1100 (B) 360 (A) 1200 (B) 400 (A) 450 (A) 500 (A) 530 (A) 600 (A) 630 (A)	Nom. ratio[2] (Act. rating) 180 (A) 710 (A) 200 (B) 750 (B) 240 (A) 850 (A) 280 (A) 950 (A) 320 (A) 1100 (B) 360 (A) 1200 (B) 400 (A) 450 (A) 500 (A) 530 (A) 600 (A) 630 (A)
n_1 nom./max.	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm	3000/4000 rpm
P th.[3]/max.	17/37 kW	24/63 kW	26.5/70 kW	30/90 kW	33/100 kW
Actual Torque Rating (Nm)[4]	(A) 73000	(A) 89000 (B) 75000	(A) 110000 (B) 92000	(A) 133000 (B) 112000	(A) 160000 (B) 135000
Peak Torque[5]	100000 Nm	140000 Nm	160000 Nm	190000 Nm	215000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

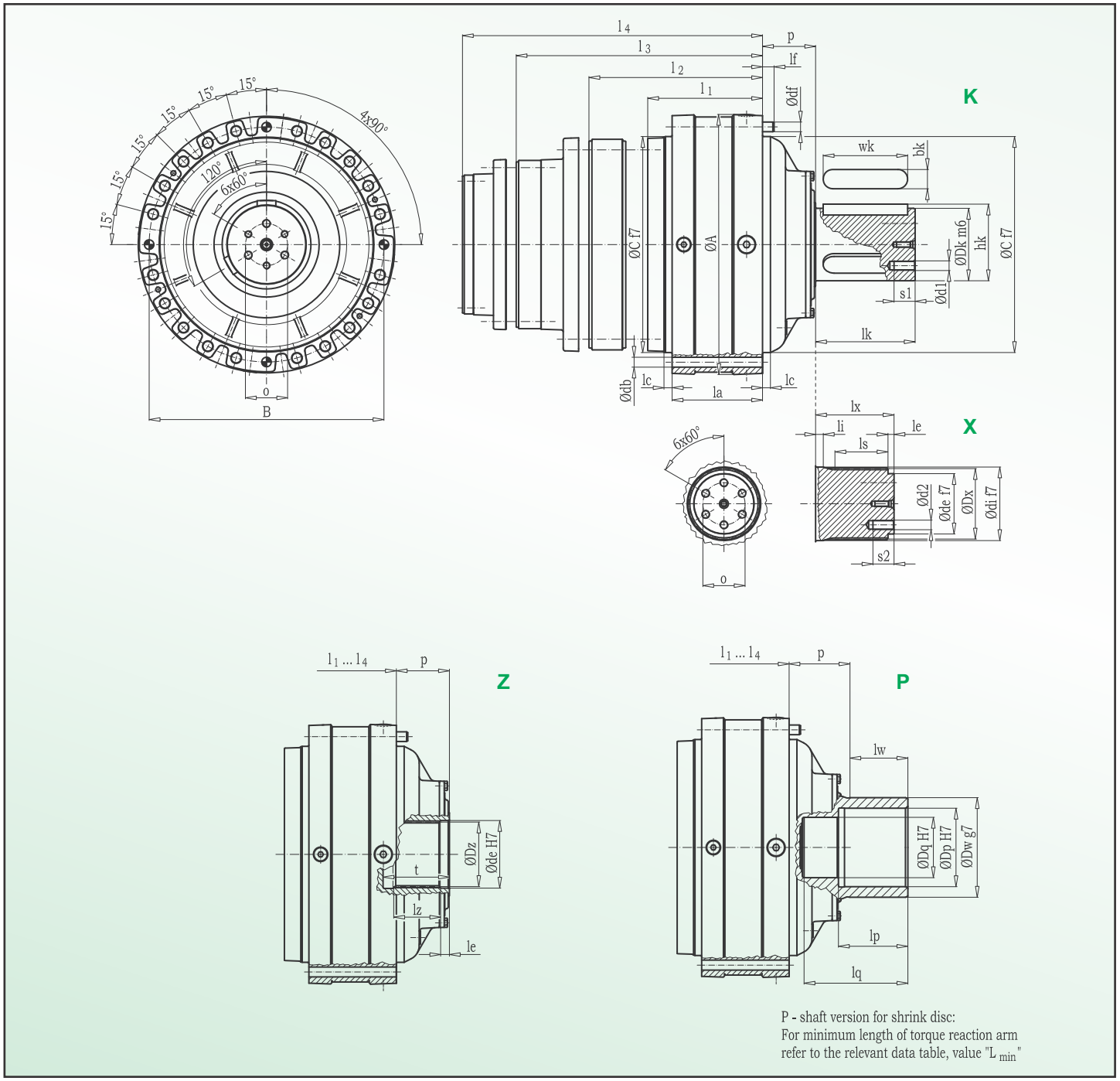
(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$



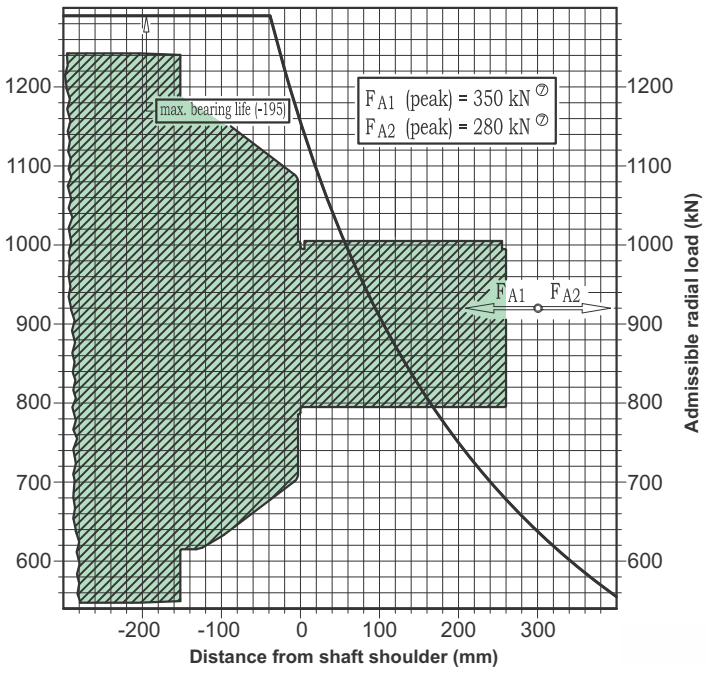
P - shaft version for shrink disc:
For minimum length of torque reaction arm refer to the relevant data table, value "L_{min}"

Model	Dimensions Solid Shafts													Keyed									DIN Splined										
	A	la	B	db	C	lc	df	lf	p	l_1	l_2	l_3	l_4	Dk	lk	bk	hk	wk	d1	s1	o	code	Dx	lx	ls	di	li	de	le	d2	s2	o	code
1700	700	195	635	32	560	20	25	35	152	266	407.5	459	543	200	260	45	210	250	M16	36	140	K 11	200 X 5	200	130	200	30	170	20	M16	36	140	X 12
2100	700	220	635	32	560	20	25	35	152	315.5	484	588.5	615	200	260	45	210	250	M16	36	140	K 11	200 X 5	200	130	200	30	170	20	M16	36	140	X 12
2500	700	220	635	32	560	20	25	35	152	315.5	484	588.5	615	200	300	50	231	280	M16	36	160	K 13	200 X 5	220	130	220	30	190	20	M16	36	160	X 14

Model	Dimensions Hollow Shafts								Hollow for Shrink Disc													Hollow Splined											
	A	B	db	C	lc	df	lf	la	p	l_1	l_2	l_3	l_4	Dp	lp	Dq	lq	Dw	lw	code	L_{min}	la	p	l_1	l_2	l_3	l_4	Dz	lz	de	le	t	code
1700	700	635	32	560	20	25	35	195	153	266	407.5	459	543	200	210	170	305	260	180	P 22	1500	195	152	266	407.5	459	543	200 x 5	115	210	17	140	Z 21
2100	700	635	32	560	20	25	35	220	153	315.5	484	588.5	615	200	210	170	305	260	180	P 22	1500	220	152	315.5	484	588.5	615	200 x 5	115	210	17	140	Z 21
2100	700	635	32	560	20	25	35	220	153	315.5	484	588.5	615	200	210	170	305	260	180	P 22	1500	220	152	315.5	484	588.5	615	200 x 5	115	210	17	140	Z 23

Model	PSR 1700	PSR 1100	PSR 2500
Torque Rating [1]	170000 Nm	110000 Nm	2500000 Nm
L1	Ratio[2] (Act. rating) 3.5 (B)* 4.2 (A) 5.3 (B) *(on request)	Ratio[2] (Act. rating) 3.5 (B)* 4.2 (A) 5.3 (B) *(on request)	Ratio[2] (Act. rating) 3.5 (B)* 4.2 (A) 5.3 (B)
n_1 nom./max.	750/1000 rpm	750/1000 rpm	750/1000 rpm
P th.[3]/max.	100/750 kW	100/850 kW	110/900 kW
L2	Nom. ratio[2] (Act. rating) 13 (B)* 21 (A) 15 (B)* 24 (B) 18 (A) 28 (B) *(on request)	Nom. ratio[2] (Act. rating) 12 (B))* 18 (A) 14 (A) 22 (B) 17 (B) 28 (B) *(on request)	Nom. ratio[2] (Act. rating) 12 (B))* 18 (A) 14 (A) 22 (B) 17 (B) 28 (B) *(on request)
n_1 nom./max.	1500/2000 rpm	900/1200rpm	900/1200rpm
P th.[3]/max.	63/360 kW	70/390 kW	70/440 kW
L3	Nom. ratio[2] (Act. rating) 56 (B)* 120 (A) 67 (A) 140 (A) 80 (A) 150 (A) 90 (A) 160 (A) 105 (A) 190 (A) *(on request)	Nom. ratio[2] (Act. rating) 45 (B)* 110 (A) 53 (B) 120 (A) 63 (A) 130 (A) 71 (B) 150 (A) 80 (A) 170 (B) 90 (A) 190 (B) 100 (A) *(on request)	Nom. ratio[2] (Act. rating) 45 (B)* 110 (A) 53 (B) 120 (A) 63 (A) 130 (A) 71 (B) 150 (A) 80 (A) 170 (B) 90 (A) 190 (B) 100 (A) *(on request)
n_1 nom./max.	2800/3800 rpm	1800/2500 rpm	1800/2500 rpm
P th.[3]/max.	20/110 kW	50/280 kW	50/280 kW
L4	Nom. ratio[2] (Act. rating) 220 (A) 530 (A) 1000 (A) 260 (A) 560 (A) 1100 (B) 300 (A) 630 (A) 1300 (B) 340 (A) 710 (A) 400 (A) 750 (A) 450 (A) 850 (A) 480 (A) 900 (A)	Nom. ratio[2] (Act. rating) 180 (A) 400 (A) 850 (B) 200 (A) 450 (A) 950 (A) 210 (A) 500 (A) 1050 (A) 240 (A) 560 (A) 1200 (B) 280 (A) 630 (A) 1300 (B) 320 (A) 710 (A) 360 (A) 800 (A)	Nom. ratio[2] (Act. rating) 180 (A) 400 (A) 850 (B) 200 (A) 450 (A) 950 (A) 210 (A) 500 (A) 1050 (A) 240 (A) 560 (A) 1200 (B) 280 (A) 630 (A) 1300 (B) 320 (A) 710 (A) 360 (A) 800 (A)
n_1 nom./max.	2800/3800 rpm	2800/3800 rpm	2800/3800 rpm
P th.[3]/max.	16/37 kW	37/120 kW	37/120 kW
Actual Torque Rating (Nm)[4]	(A) 215000 (B) 175000	(A) 260000 (B) 220000	(A) 310000 (B) 260000
Peak Torque[5]	300000 Nm	350000 Nm	400000 Nm

Bearing capacity, solid shafts 6) and 8)



(1) Harmonised nominal value referring to preferred number R40. Actual transmissible torque may vary depending on ratio, speed and application.

(2) Harmonised nominal value referring to preferred numbers R40. For actual ratios see Annex C.

(3) Thermal power limit. For actual figures based on speed, temperature and duty see section B4, specifications, paragraph 8.

(4) Mean value at rated conditions. For actual figures based on speed, service life and application/duty see section B4, specifications, paragraph 6.

(5) Restrictions may apply for hollow shaft for shrink disc, see section G, output accessories. Customer to verify the rating shaft is capable of loads actually transmitted.

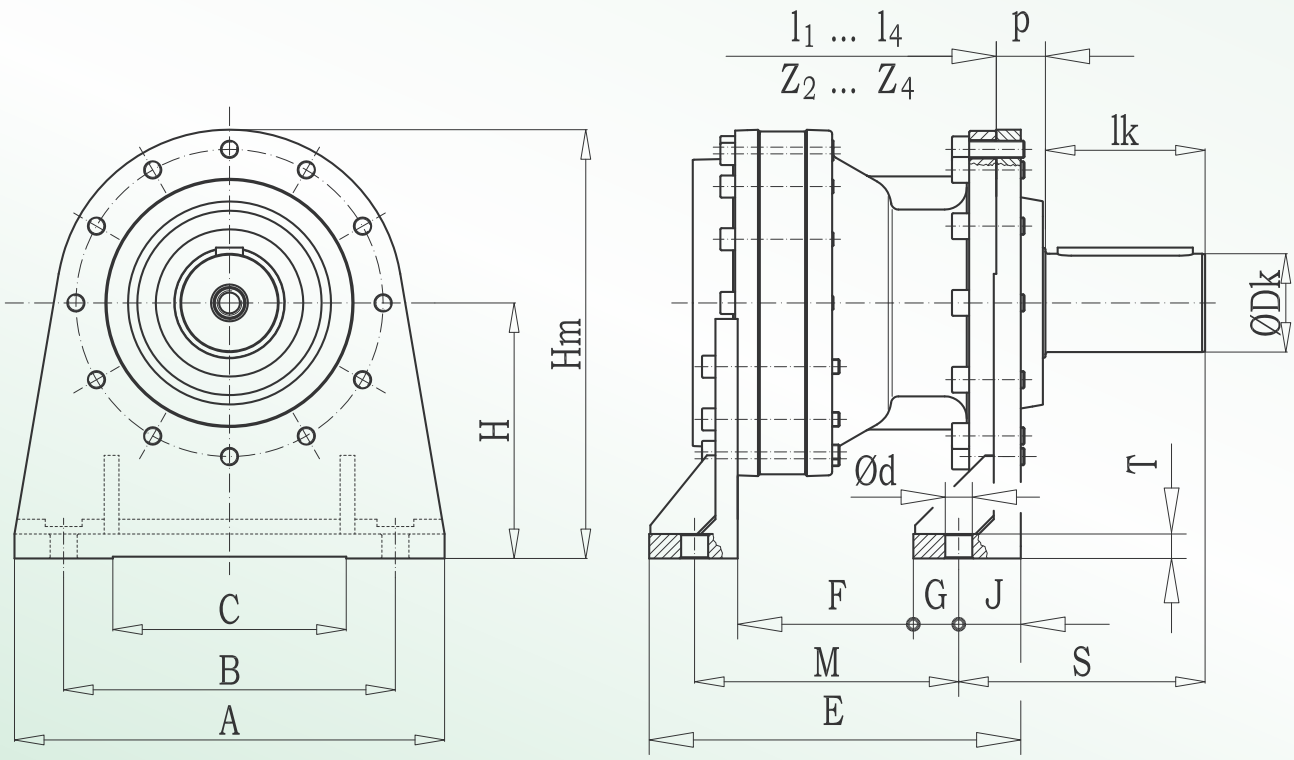
(6) Mean values at rated conditions. For actual admissible loads based on speed, service life and application/duty see section B4, specifications, paragraph 9.

(7) Maximum peak values which must never be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate life calculation of specific application.

(8) Combination of high torque and heavy radial shaft load might require verification of the output shaft. If the following condition is not fulfilled contact jbj Techniques technical office, telephone 01737 767483, email: info@jbj.co.uk for accurate verification of your specific application:

$$\frac{\text{Radial load (applied)}}{\text{Radial load (admissible)}} \times \frac{\text{Torque (applied)}}{\text{Torque (nominal)}} < 0.5$$

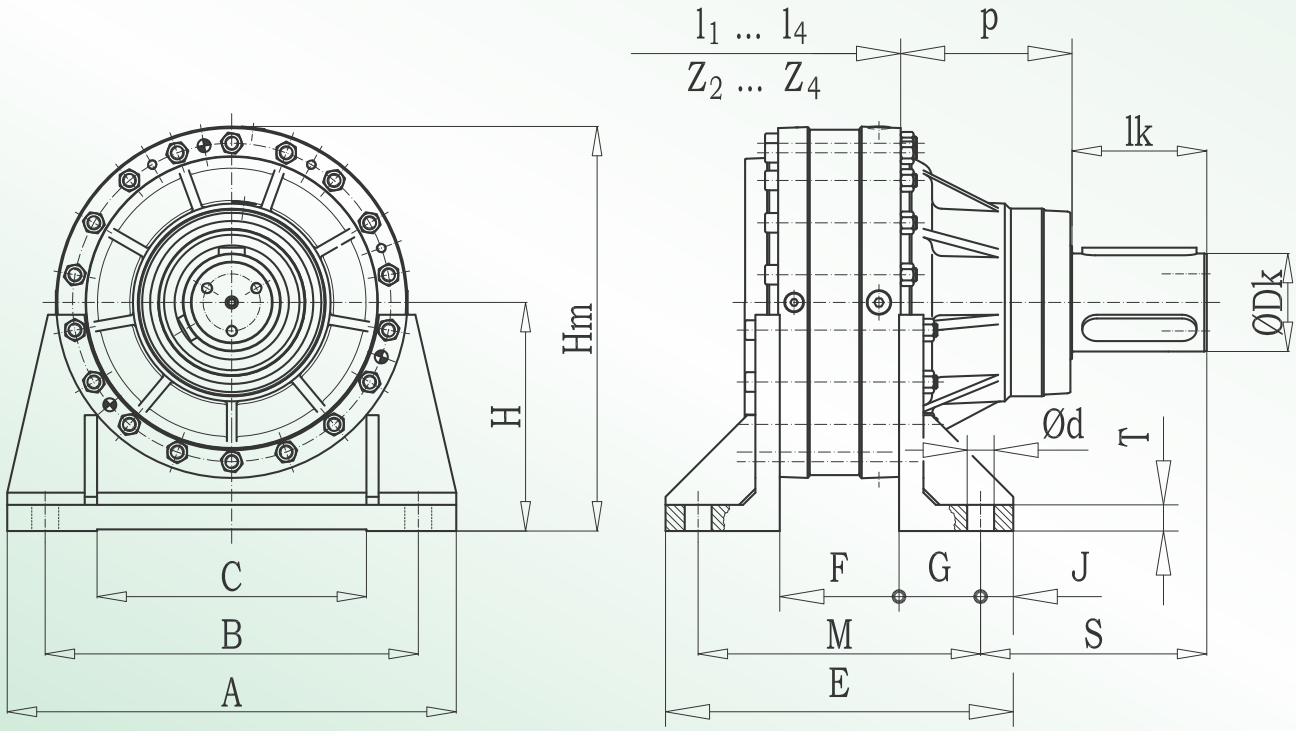
The foot mounts for gearboxes from model PSR 36 to model PSR 260 come factory fitted. They cannot be installed afterwards.
For gearboxes from model PSR 300 to PSR 2500 the foot mounts can be installed after commissioning. Standard orientation for the input end on right-angle gearboxes is B51 or “12 o’clock”. Different orientations must be stated when ordering, eg. B53 (3 o’clock), B52 (6 o’clock) and B5 (9 o’clock). Indication of orientation is valid for the input end view. See also section D, Mounting Positions.



Dimensions and technical data not shown can be found in the relevant tables for the flange mounted gears.

Type	Dimensions Foot Mounts ‘FM’																		
	A	B	C	Dk	lk	E	F	G	d	H	Hm	J	M	p	S	T	m (kg)	m (lbs)	used on gearbox
FM 36	310	254	-	60	105	223	70	36	18	160	270	21	126 - 143	15	86	16	15	33	36 - K 11, X 12
FM 42	310	254	-	60	105	223	70	36	18	160	270	21	126 - 143	15	86	16	15	33	42 - K 11, X 12
FM 50	310	254	-	60	105	223	70	36	18	160	270	21	126 - 143	15	86	16	15	33	50 - K 12, X 12
FM 60	310	254	-	60	105	238	85	36	18	160	270	21	141 - 158	15	86	16	15	33	60 - K 13, X 12
FM 67	310	254	-	60	105	238	85	36	18	160	270	21	141 - 158	15	86	16	15	33	67 - K 13, X 12
FM 75	350	270	190	80	130	233.5	74	37	22	208	350	50.5	148	40	200.5	20	25	55	75 - K 11, X 12
FM 85	350	270	190	80	130	233.5	74	37	22	208	350	50.5	148	40	200.5	20	25	55	85 - K 11, X 12
FM 100	350	270	190	80	130	233.5	74	37	22	208	350	50.5	148	40	200.5	20	25	55	100 - K 11, X 12
FM 110	350	270	190	80	130	248.5	74	37	22	208	350	50.5	148	40	200.5	20	25	55	110 - K 11, X 12
FM 130	350	270	190	80	130	233.5	74	37	22	208	350	50.5	148	40	200.5	20	25	55	130 - K 11, X 12
FM 140	445	356	265	90	170	330	160	32	25	225	405	53	245	36	236	22	38	84	140 - K 11, X 12
FM 170	445	356	265	90	170	330	160	32	25	225	405	53	245	36	236	22	38	84	170 - K 11, X 12
FM 200	445	356	265	100	165	330	160	32	25	225	405	53	245	36	231	22	38	84	200 - K 11, X 12
FM 220	445	356	265	100	165	350	180	32	25	225	405	53	265	36	231	22	38	84	220 - K 11, X 12
FM 260	445	356	265	100	165	350	180	32	25	225	405	53	265	36	231	22	38	84	260 - K 11, X 12

The foot mounts for gearboxes from model PSR 36 to model PSR 260 come factory fitted. They cannot be installed afterwards.
For gearboxes from model PSR 300 to PSR 2500 the foot mounts can be installed after commissioning. Standard orientation for the input end on right-angle gearboxes is B51 or “12 o’clock”. Different orientations must be stated when ordering, eg. B53 (3 o’clock), B52 (6 o’clock) and B5 (9 o’clock). Indication of orientation is valid for the input end view. See also section D, Mounting Positions.

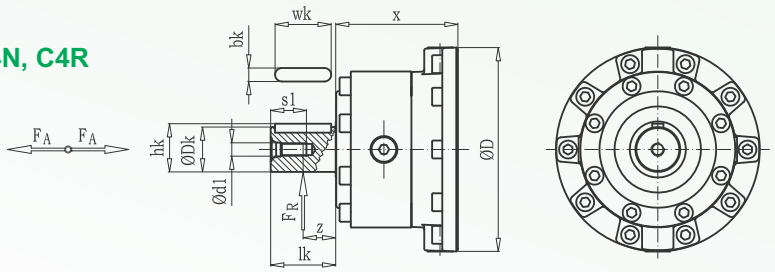


Dimensions and technical data not shown can be found in the relevant tables for the flange mounted gears.

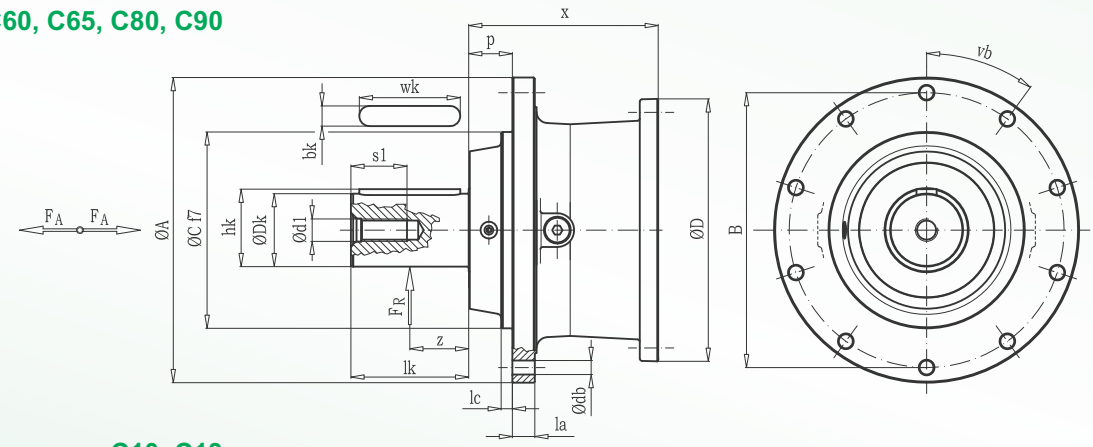
Type	Dimensions Foot Mounts ‘FM’ and ‘FL’																	
	A	B	C	Dk	lk	E	F	G	d	H	Hm	J	M	p	S	T	m (kg)	m (lbs)	used on gearbox
FM 300	550	457	330	100	165	398	118	100	33	280	500	40	318	210	277	32	78	172	300 - K 11, X 12
FL 300	550	457	330	100	165	448	118	100	33	280	500	40	334 - 378	210	277	32	81	179	300 - K 11, X 12
FM 360	550	457	330	100	165	401	121	100	33	280	500	40	321	210	277	32	78	172	360 - K 11, X 12
FL 360	550	457	330	100	165	451	121	100	33	280	500	40	337 - 381	210	277	32	81	179	360 - K 11, X 12
FM 420	550	457	330	120	165	401	121	100	33	280	500	40	321	210	277	32	78	172	420 - K 13, X 14
FL 420	550	457	330	120	165	451	121	100	33	280	500	40	337 - 381	210	277	32	81	179	420 - K 13, X 14
FM 480	550	457	330	120	165	426	146	100	33	280	500	40	346	210	277	32	78	172	480 - K 13, X 14
FL 480	550	457	330	120	165	476	146	100	33	280	500	40	362 - 406	210	277	32	81	179	480 - K 13, X 14
FM 560	550	457	330	120	165	426	146	100	33	280	500	40	346	210	277	32	78	172	560 - K 13, X 14
FL 560	550	457	330	120	165	476	146	100	33	280	500	40	362 - 406	210	277	32	81	179	560 - K 13, X 14
FM 630	550	457	330	130	170	460	146	117	33	280	515	40	380	227	277	32	83	183	630 - K 11, X 12
FM 750	620	508	380	150	200	497	149	112.5	39	315	590	61.5	374	279	369	32	100	220	750 - K 11, X 12
FL 750	620	508	380	150	200	497	149	112.5	39	315	590	61.5	374 - 409	279	369	32	100	220	750 - K 11, X 12
FM 900	620	508	380	150	200	497	149	112.5	39	315	590	61.5	374	279	369	32	100	220	900 - K 11, X 12
FL 900	620	508	380	150	200	497	149	112.5	39	315	590	61.5	374 - 409	279	369	32	100	220	900 - K 11, X 12
FM 1100	620	508	380	170	200	527	179	112.5	39	315	590	61.5	404	279	369	32	100	220	1100 - K 13, X 14
FL 1100	620	508	380	170	200	527	179	112.5	39	315	590	61.5	404 - 439	279	369	32	100	220	1100 - K 13, X 14
FM 1300	620	508	380	170	200	527	179	112.5	39	315	590	61.5	404	279	369	32	100	220	1300 - K 13, X 14
FL 1300	620	508	380	170	200	527	179	112.5	39	315	590	61.5	404 - 439	279	369	32	100	220	1300 - K 13, X 14
FM 1700	850	700	550	200	260	585	189	128	45	415	765	70	445	152	287	45	270	595	1700 - K 11, X 12
FM 2100	850	700	550	200	260	610	214	128	45	415	765	70	470	152	287	45	270	595	2100 - K 11, X 12
FM 2500	850	700	550	200	300	610	214	128	45	415	765	70	470	152	287	45	270	595	2500 - K 13, X 14

E. Koed Christensen A/S

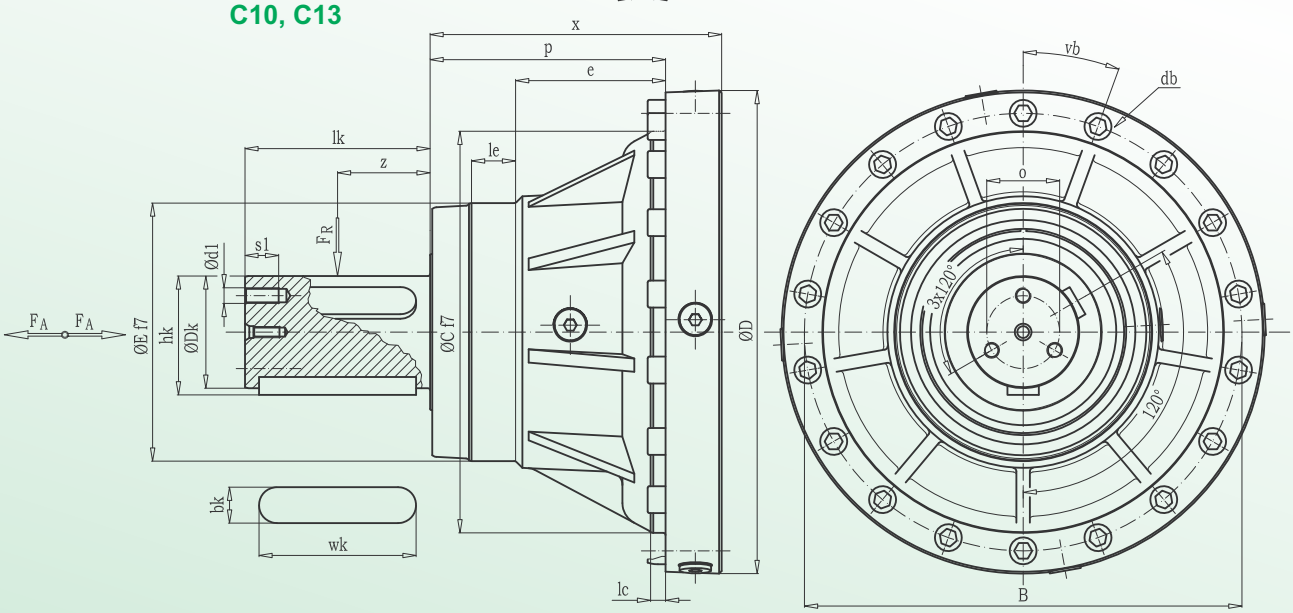
C4N, C4R



C60, C65, C80, C90



C10, C13

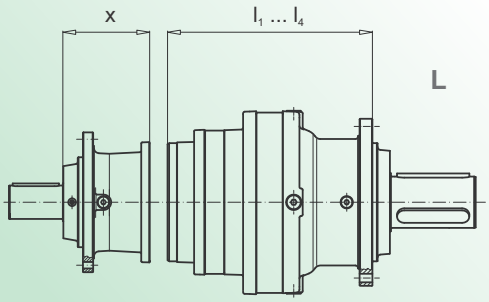


Type	Dimensions																					F_A	F_R Shaft Shoulder				F_R Middle of Shaft				F_R End of Shaft			
	A	la	B	db	vb	C	lc	D	E	le	e	p	Dk	lk	bk	hk	wk	d1	s1	o	z		10^5	10^6	10^7	10^8	10^5	10^6	10^7	10^8	10^5	10^6	10^7	10^8
C4N	-	-	-	-	-	-	-	185	-	-	-	-	40 k6	58	12	43	50	M12	32	-	29	2	15.5	7.2	3.3	1.6	10.8	5.1	2.3	1.1	6.9	3.2	1.5	0.7
C4R	-	-	-	-	-	-	-	185	-	-	-	-	40 k6	58	12	43	50	M12	32	-	29	2	32.6	16.3	8.2	4.1	16.3	7.6	3.5	1.6	10.3	4.8	2.2	1.0
C60	220	18	195	12.5	10 x 36°	150	14	242	-	-	-	15	60 k6	105	18	65	90	M20	50	-	52.5	7	62.1	31.1	15.6	7.8	38.3	19.2	9.6	4.8	27.7	13.9	7.0	3.5
C65	272	20	245	12.5	10 x 36°	175	10	242	-	-	-	39	60 k6	105	18	65	90	M20	50	-	52.5	7	72.8	36.5	18.3	9.2	50.3	25.2	12.6	6.3	38.4	19.3	9.7	4.8
C80	280	22	250	15	12 x 30°	200	14.5	285	-	-	-	40	80 k6	130	22	85	110	M20	50	-	65	10	92.0	56.0	23.0	11.5	62.0	31.0	15.5	7.8	47.0	23.5	11.8	5.9
C90	325	25	295	16.5	20 x 18°	230	10	360	-	-	-	36	90 k6	170	25	95	150	M20	50	-	85	15	152	76.0	38.0	19.0	94.0	47.0	23.5	11.8	68.0	34.0	17.0	8.5
C10	-	-	390	M16	18 x 20°	358	13.5	432	230	40	135	210	100 m6	165	28	106	140	M14	30	65	82.5	20	212	106	53.0	27.0	142	71.0	36.0	18.0	107	54.0	27.0	14.0
C13	-	-	415	M18	18 x 20°	385	13	460	260	38	152	227	130 m6	170	32	137	160	M16	35	70	85	25	305	153	76.0	38.0	216	108	54.0	27.0	134	67.0	34.0	17.0

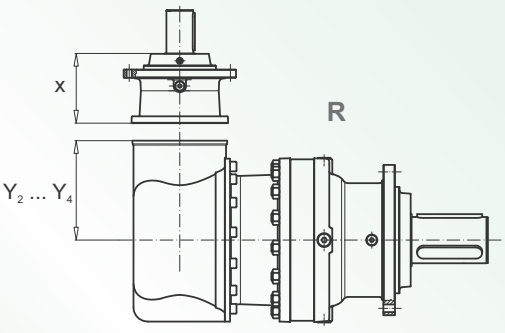
Admissible Shaft Loads (kN) based on location of load and bearing life. Max. values which must not be exceeded. Combined thrust and radial shaft loads might reduce bearing life. Contact jbj Techniques for precise life calculation.

These high speed shafts (HSS) are available in several sizes and versions. The smaller of them C4N and C4R are suitable for the transmission of smaller powers only. The larger types from C60 to C13 allow for the transmission of high power. Models C60 to C13 provide the possibility to install a cover guard whilst C4N and C4R do not have this feature. See table below for availability. For dimensions and technical data refer to page 30 opposite.

Size	Gearbox Model											Size	Right-angle	
			In-line											
15	15 L1-L4													
18	18 L1-L4													
22	22 L1-L4													
28	28 L1-L4													
32	32 L1-L4													
36	36 L1-L4	36 L1										36	36 R2-R4	
42	42 L2-l4	42 L1										42	42 R2-R4	
50	50 L2-L4	50 L1										50	50 R2-R4	
60	60 L2-L4	60 L1										60	60 R2-R4	
67	67 L2-L4	67 L1										67	67 R2-R4	
75	75 L3-L4	75 L2	75 L1									75	75 R2-R4	
85	85 L3-L4	85 L2	85 L2									85	85 R2-R4	
100	100 L3-L4	100 L2	100 L1									100	100 R2-R4	
110	110 L3-L4	110 L2	110 L1									110	110 R2-R4	
130	130 L3-L4	130 L2	130 L1									130	130 R2-R4	
140	140 L3-L4	140 L2		140 L1								140	140 R2-R4	
170	170 L3-L4	170 L2		170 L1								170	170 R2-R4	
200	200 L4	200 L3	200 L2		200 L1							200	200 R3-R4	200 R2
220	220 L4	220 L3	220 L2		220 L1							220	220 R3-R4	220 R2
260	260 L4	260 L3	260 L2		260 L1							260	260 R3-R4	260 R2
300	300 L4	300 L3	300 L2			300 L1						300	300 R3-R4	300 R2
360	360 L4	360 L3		360 L2			360 L1					360	360 R3-R4	360 R2
420	420 L4	420 L3			420 L2		420 L1					420	420 R3-R4	420 R2
480	480 L4	480 L3			480 L2		480 L1					480	480 R3-R4	480 R2
560		560 L4	560 L3		560 L2		560 L1					560	560 R4	560 R2-R3
630		630 L4	630 L3		630 L2		630 L1					630	630 R4	630 R3
750		750 L4	750 L3			750 L2			750 L1			750	750 R4	750 R3
900		900 L4	900 L3			900 L2			900 L1			900	900 R4	900 R3
1100		1100 R4		1100 R3				1100 L2	1100 L1			1100	1100 R4	1100 R3
1300		1300 L4		1300 L3				1300 L2	1300 L1			1300	1300 R4	1300 R3
1700			1700 L4		1700 L3		1700 L2			1700 L1				
2100			2100 L4			2100 L3			2100 L2		2100 L1			
2500			2500 L4			2500 L3			2500 L2		2500 L1			
Type	Distance ‘x’ (mm)											Type	Distance ‘x’ (mm)	
C4N	107 9.3 kg 20.5 lbs	111 10.8 kg 23.8 lbs										C4N	107 9.3 kg 20.9 lbs	
C4R	107 9.5kg 20.9lbs	111 11.0 kg 24.3 lbs										C4R	107 9.5 kg 20.9 lbs	
C60		165 22.5 kg 49.6 lbs	190 23.7 kg 52.3 lbs	191 27.6 kg 60.8 lbs	191 27.6 kg 60.8 lbs								C60	139 22.5 kg 49.6 lbs
C65			222.5 31.6 kg 69.7 lbs	223.5 35.7 kg 78.7 lbs	223.5 35.7 kg 78.7 lbs							C65		172 30.4 kg 67.0 lbs
C80					255 48.2 kg 106.2 lbs	197.5 40.3 kg 88.8 lbs								
C90							213.5 69.0 kg 152.1 lbs	213.5 69.0 kg 152.1 lbs						
C10								238.5 100.0 kg 220.5 lbs	262 117.5 kg 259.0 lbs					
C13										279 141.8 kg 312.6 lbs	254.5 135.4 kg 298.5 lbs			



Mounting scheme, in-line gears



Mounting scheme, right-angle gears

The combinations given in the tables show the most common combinations of gearboxes and electric motors. These are based on typical applications and average reduction ratios.

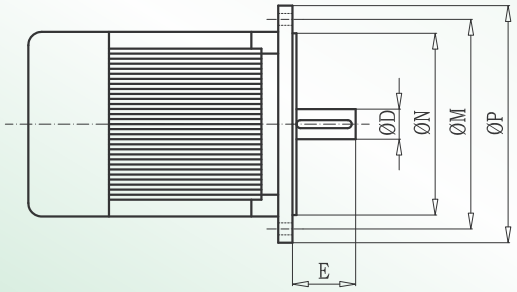
Further combinations such as for uncommon applications or for very low or high ratios are available on request.

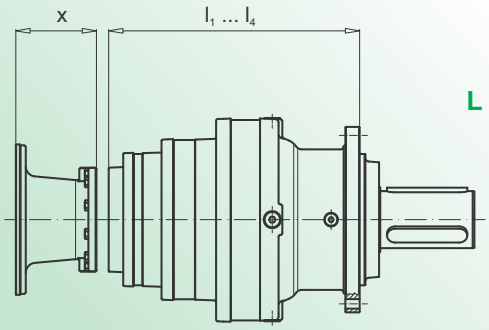
Due to the wide range of power, torque and speed for electric motors the listed gear and motor combinations are intended to be just a quick reference not showing the multitude of combination possibilities.

The selected unit must be verified according to gear selection criteria as detailed on pages 39 to 42 of this document.

Type	Basic IEC Dimensions, B5 - Type Flange (mm)					
	ØP	ØN	ØM	ØD	E	Flange Code
63	140	95	115	11	23	E63
71	160	110	130	14	30	E71
80	200	130	165	19	40	E80
90	200	130	165	19	40	E90
100	250	180	215	28	60	E10
112	250	180	215	28	60	E10
132	300	230	265	38	80	E10
160	350	250	300	42	110	E16
180	350	250	300	48	110	E18
200	400	300	350	55	110	E22
225	450	350	400	65	140	E25
250	550	450	450	65	140	E25
280	550	450	450	65	140	E25
315	660	550	550	80	170	E31

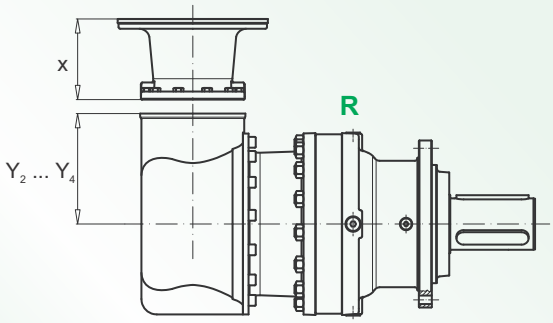
IEC





L

Mounting scheme, in-line gears



R

Mounting scheme, right-angle gears

Motor Flange Thickness 'x' (mm)																																				
Size, Version	15				18				22				28				32				36				42				50				60				67			
Type	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4
E63	-	-	58	58	-	-	-	58	-	-	-	58	-	-	-	58	-	-	-	58	-	-	-	58	-	-	-	58	-	-	-	58	-	-	-	58	-	-	-	-
E71	-	-	62	62	-	-	62	62	-	-	62	62	-	-	62	62	-	-	-	62	-	-	-	62	-	-	-	62	-	-	-	62	-	-	-	62	-	-	-	62
E80	-	83	83	-	-	-	83	-	-	-	83	-	-	-	83	83	-	-	83	83	-	-	83	83	-	-	83	83	-	-	-	83	-	-	-	83	-	-	-	83
E90	-	83	83	-	-	83	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	83	83
E10	93	93	-	-	-	93	-	-	-	93	-	-	-	93	93	-	-	93	93	-	-	93	93	-	-	93	93	-	-	93	93	-	-	93	93	-	-	-	93	-
E13	115	115	-	-	115	115	-	-	115	115	-	-	-	115	-	-	-	115	-	-	-	115	-	-	-	115	-	-	-	115	-	-	-	115	-	-	-	115	115	-
E16	145	-	-	-	145	-	-	-	145	-	-	-	145	145	-	-	145	145	-	-	149	145	-	-	149	145	-	-	149	145	-	-	149	145	-	-	149	145	-	-
E18	145	-	-	-	145	-	-	-	145	-	-	-	145	-	-	-	145	-	-	-	149	-	-	-	149	145	-	-	149	145	-	-	149	145	-	-	149	145	-	-
E20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-
E22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-
E25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189	-	-	-	189	-	-	-

Motor Flange Thickness 'x' (mm)

Size, Version	75				85				100				110				130				140				170				200				220				260			
Type	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4
E71	-	-	-	62	-	-	-	62	-	-	-	62	-	-	-	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E80	-	-		83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	-83	-	-	-	83	-	-	-	83
E90	-	-	83	83	-	-	83	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83
E10	-	-	93	-	-	-	93	-	-	-	93	-	-	-	93	93	-	-	93	93	-	-	93	93	-	-	93	93	-	-	97	93	-	-	97	93	-	-	-	93
E13	-	119	115	-	-	119	115	-	-	-	115	-	-	-	115	-	-	-	115	-	-	-	115	-	-	-	115	-	-	-	119	-	-	-	119	-	-	-	119	-
E16	-	149	-	-	-	149	-	-	-	149	-	-	-	149	-	-	-	149	145	-	-	149	145	-	-	149	145	-	-	-	149	-	-	-	149	-	-	-	149	-
E18	-	149	-	-	-	149	-	-	-	149	-	-	-	149	-	-	-	149	-	-	-	149	-	-	-	149	-	-	-	-	149	-	-	-	149	-	-	-	149	-
E20	195	189	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-	195	-	-	-	195	-	-	-	195	-	-
E22	195	-	-	-	195	189	-	-	195	189	-	-	195	189	-	-	-	189	-	-	-	189	-	-	-	189	-	-	-	195	-	-	-	195	-	-	-	195	-	-
E25	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	-	195	189	-	-	195	189	-	-	-	189	-	-	-	195	-	-	-	195	-	-	-	195	-	-
E28	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	-

Size, Version	300				360				420				480				560			630			750			900			1100			1300			1700		2100		2500	
Type	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L2	L3	L4	L2	L3	L4	L2	L3	L4	L2	L3	L4	L2	L3	L4	L2	L3	L4	L3	L4	L3	L4	L3	L4
E90	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E10	-	-	-	93	-	-	-	93	-	-	-	93	-	-	-	93	-	-	97	-	-	97	-	-	97	-	-	97	-	-	97	-	-	-	-	-	-	-	-	-	-
E13	-	-	119	115	-	-	119	115	-	-	119	115	-	-	119	115	-	-	119	-	-	119	-	-	119	-	-	119	-	-	119	-	-	119	-	-	-	-	-	-	-
E16	-	-	149	-	-	-	149	-	-	-	149	-	-	-	149	145	-	-	149	-	-	149	-	-	149	-	-	149	-	-	149	-	-	149	-	-	-	-	-	-	-
E18	-	-	149	-	-	-	149	-	-	-	149	-	-	-	149	-	-	-	-	-	-	-	-	-	149	-	-	149	-	-	149	-	-	149	-	-	-	-	-	-	-
E20	-	195	-	-	-	195	-	-	-	-	-	-	-	-	-	-	-	195	-	-	195	-	-	195	-	-	195	-	-	195	-	-	195	-	-	195	-	195	-	195
E22	-	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	195	195	-	195	195	-	-	195	-	-	195	-	-	195	-	-	195	-	-	195	-	195	-	195	-	195
E25	-	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	195	195	-	195	195	-	-	195	-	-	195	-	-	195	-	-	195	-	-	195	-	195	195	-	195	-	195
E28	-	195	-	-	-	195	-	-	-	195	-	-	-	195	-	-	195	-	-	195	-	-	-	195	-	-	195	-	-	195	-	-	195	-	-	195	-	195	-	-	195	-	195
E31	197	-	-	-	186	-	-	-	186	-	-	-	186	-	-	-	-	-	-	-	-	-	197	-	-	197	-	-	186	-	-	186	-	-	-	-	197	-	197	-

Size, Version	36			42			50			60			67			75			85			100			110			130			140			170			200			
Type	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	-
E63	-	-	58	-	-	58	-	-	58	-	-	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E71	-	-	62	-	-	62	-	-	62	-	-	62	-	-	62	-	-	62	-	-	62	-	-	62	-	-	62	-	-	-	-	-	-	-	-	-	-	-	-	-
E80	-	83	83	-	83	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-
E90	-	83	-	-	83	-	-	83	-	-	83	-	-	83	83	-	83	83	-	83	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-
E10	93	93	-	93	93	-	93	93	-	93	93	-	-	93	-	-	93	-	-	93	-	-	93	-	-	93	93	-	93	93	-	93	93	-	93	93	-	93	93	-
E13	115	-	-	115	-	-	115	-	-	115	-	-	115	115	-	115	115	-	115	115	-	-	115	-	-	115	-	-	115	-	-	115	-	-	115	-	-	115	-	-
E16	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	145	-	145	145	-	145	145	-	-	145	-	-
E18	-	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	-	145	-	-
E20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144	-	-	-	-
E22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144	-	-	-	-
E25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144	-	-	-	-

Size, Version	220			260			300			360			420			480			560			630	750		900		1100		1300		
Type	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R2	R3	R4	R3	R4	R3	R4	R3	R4	R3	R4	R3	R4
E90	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	83	-	-	-	-	-	-	-	-	-	-	-	-	-
E10	-	93	93	-	-	93	-	-	93	-	-	93	-	-	93	-	-	93	-	-	93	-	93	-	93	-	93	-	93	-	93
E13	-	115	-	-	115	-	-	115	115	-	115	115	-	115	115	-	115	115	-	-	115	-	115	-	115	-	115	-	115	-	115
E16	-	145	-	-	145	-	-	145	-	-	145	-	-	145	-	-	145	145	-	-	145	-	145	-	145	-	145	-	145	-	145
E18	-	-	-	-	-	-	-	145	-	-	145	-	-	145	-	-	145	-	-	-	-	-	-	-	145	-	145	-	145	-	145
E20	144	-	-	144	-	-	144	-	-	144	-	-	-	-	-	-	-	-	-	144	-	144	-	144	-	144	-	144	-	144	-
E22	144	-	-	144	-	-	144	-	-	144	-	-	144	-	-	144	-	-	144	144	-	144	-	144	-	144	-	144	-	144	-
E25	144	-	-	144	-	-	144	-	-	144	-	-	144	-	-	144	-	-	144	144	-	144	-	144	-	144	-	144	-	144	-
E28	-	-	-	-	-	-	144	-	-	144	-	-	144	-	-	144	-	-	144	-	-	-	-	144	-	144	-	144	-	144	-

Approximate Mass					
Code	kg	lbs	Code	kg	lbs
E63	4.5	10	E18	14	31
E71	5.5	12	E20	38	84
E80	7.5	16.5	E22	42	92.5
E90	7.5	16.5	E25	52	115
E10	8.5	19	E28	52	115
E13	10	22	E31	122	269
E16	14	31			

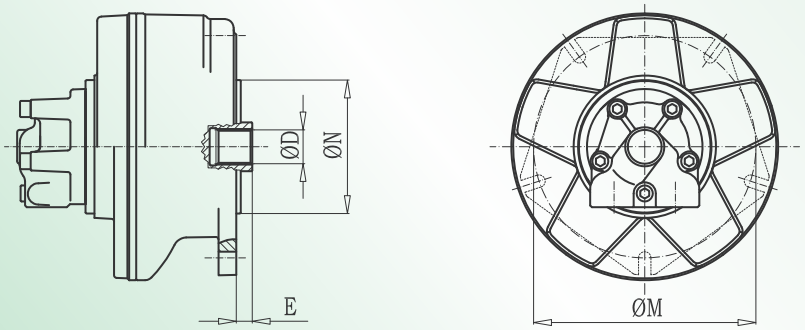
The combinations given in the tables show the most common combinations of gearboxes and electric motors. These are based on typical applications and average performance requirements.

Further input adaptors such as for uncommon brands of hydraulic motors available on request.

Due to the wide range of power, torque and speed for electric motors the listed combinations are intended to be just a quick reference not showing the multitude of combination possibilities.

The selected unit must be verified according to gear selection criteria as detailed on pages 39 to 42 of this document.

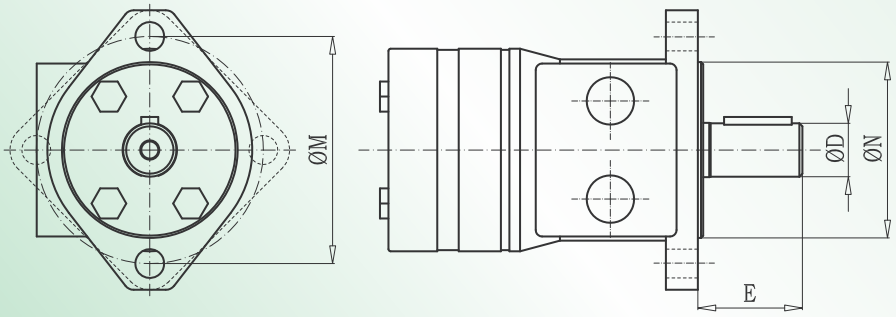
SAI



SAI GM- & T-Series Basic Dimensions

SAE Frame Size	ØN	ØM	E max	ØD				Thickness 'x'		Approx. Mass	
	(mm)	(mm)	(mm)	35 x 2 x 16	40 x 3 x 12	55 x 3 x 17	80 x 3 x 25	Input Type	x	(kg)	(lbs)
GM 05, FS15-A1	125	160	23	F15	-	-	-	1	33	2.5	5.5
GM 1 FS15-A2, FS30-A1	175	210	8	F21	-	-	-	2	28	3.0	6.6
				F31	-	-	-	3	55	5.8	12.8
TF-TD-TV 1.5	150	230	18	-	T15	-	-	3	33.5	6.0	13.2
TF-TD-TV 2.5	150	300	18	-	-	T25	-	3	53.5	15.4	34.0
								4	74	18.1	39.9
GM 2 FS30-A2, FS50-A1	150	250	18	-	F32	-	-	3	33.5	5.7	12.6
				-	F42	-	-	4	62	11.1	24.5
TF-TD-TV 3.5	265	340	14	-	-	T35	-	4	69	23.0	50.7
GM 3	265	310	18	-	-	F43	-	4	38	9.3	20.5
GM 4	265	310	14	-	-	F44	-	4	38	9.5	20.9
						F54	-	5B	5.5	3.5	7.7
GM 5A	265	310	14	-	-	F54	-	5B	5.5	3.5	7.7
GM 6	381	420	20	-	-	-	F56	5B	46.5	25.1	55.3
L 7 B	381	420	20	-	-	-	F66	6	50	35.5	78.3

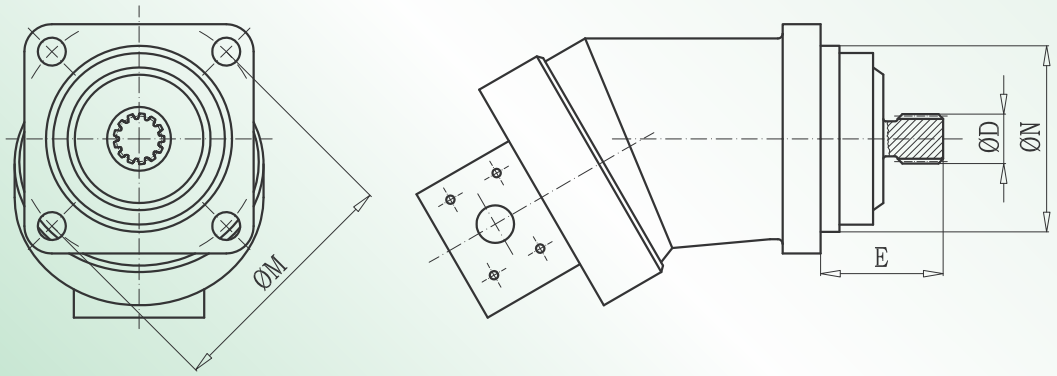
SAE



SAE Type Flange Basic Dimensions

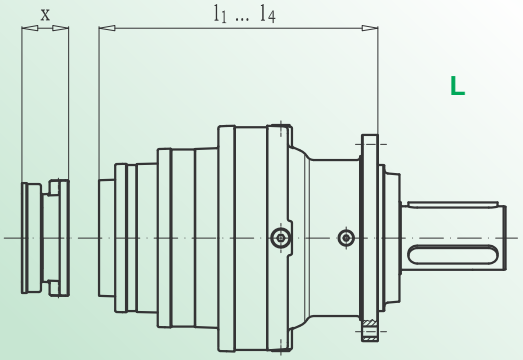
SAE Frame Size	ØN	ØM	E max	ØD											Thickness 'x'		Approx. Mass	
	(in.)	(in.)	(mm)	Ø 0.875"	16/32 -13T	Ø25 mm	Ø1"	1" - 6B	Ø1.25"	Ø32mm	12/24 -14T	16/32 -21T	16/32 -23T	5/16 -13T	Input Type	x	(kg)	(lbs)
A - 2/4 bolt	3.25	4.188	68	-	A13	A25	A10	A6B	A12	A32	A14	-	-	-	1	104	5.4	11.9
															2	108	7.0	15.4
B - 2/4 bolt	4.00	5.750	75	B78	B13	B25	B10	B6B	-	-	B14	-	-	-	1	111	6.7	14.8
															2	115	8.3	18.3
C - 2 bolt	5.00	7.125	73	-	-	-	-	-	-	-	C14	C21	C23	-	1	109	8.1	17.9
															2	113	9.7	21.4
D - 2/4 bolt	6.00	9.000	73	-	-	-	-	-	-	-	-	-	-	D13	1	109	15.5	34.2
															2	113	17.1	37.7

ISO



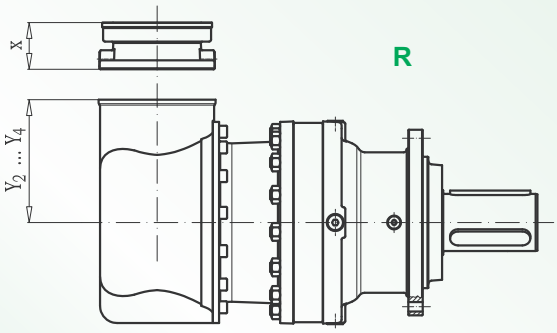
ISO Type Flange Basic Dimensions														
SAE Frame Size	ØN	ØM	E max	ØD							Thickness 'x'		Approx. Mass	
	(mm)	(mm)	(mm)	Ø 25	m1.25 z18	30 x 2 x 14	35 x 2 x 16	40 x 2 x 21	45 x 2 x 21	50 x 2 x 24	Input Type	x	(kg)	(lbs)
4 - 100	80	100	54	25A	-	-	-	-	-	-	1	88	6.4	14.1
4 - 125	100	125	60	-	-	14B	-	-	-	-	1	94	8.0	17.6
4 - 160	125	160	72	-	-	14C	16C	-	-	-	1	106	10.3	22.7
											2	110	11.9	26.2
4 - 180	140	180	77	-	-	-	-	18G	-	-	1	111	11.2	24.7
											2	115	12.8	28.2
4 - 200	160	200	90	-	-	-	-	-	21E	-	1	124	14.9	32.8
											2	128	16.5	36.4
4 - 224	180	224	95	-	-	-	-	-	-	24F	1	129	17.3	38.1
											2	133	18.9	41.7
4 - 250	200	250	95	-	-	-	-	-	-	24G	2	133	24.8	54.7
4 - 280	224	280	108	-	-	-	-	-	-	24H	2	146	28.6	63.1

Mounting scheme, in-line gears



L

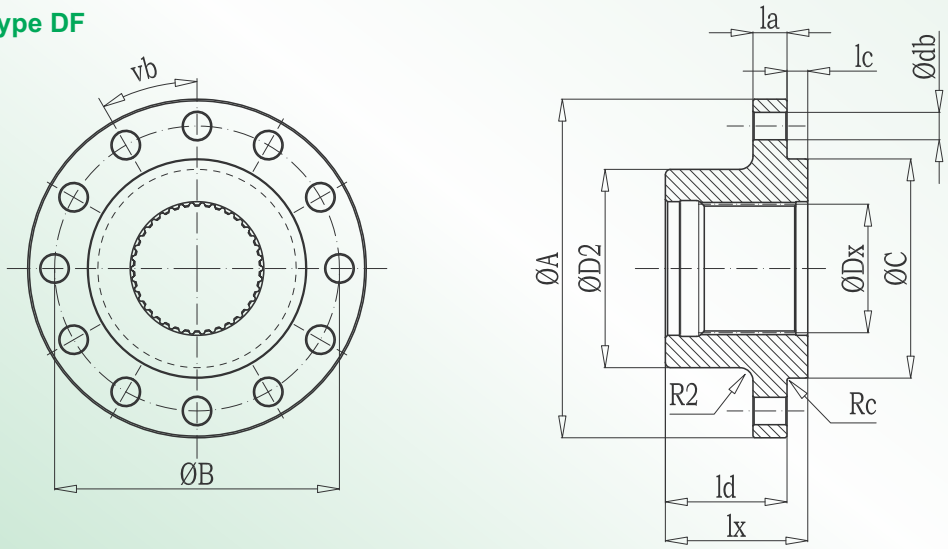
Mounting scheme, right-angle gears



R

Input Flange Type																																						
Size, no. stages	15				18				22				28				32				36				42				50				60				67				75			
Type	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1	3	2	1	1
R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	1	1	1	-	1	1	1	-	1	1	1	-	1	1	1	-	1	1	1
Size, no. stages	85				100				110				130				140				170				200				220				260				300				360			
Type	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
L	3	2	1	1	3	2	1	1	3	2	1	1	3	2	1	1	4	2	1	1	4	2	1	1	4	3	2	1	4	3	2	1	4	3	2	1	5A	3	2	1	5B	4	2	1
R	-	1	1	1	-	1	1	1	-	1	1	1	-	1	1	1	-	1	1	1	-	1	1	1	-	2	1	1	-	2	1	1	-	2	1	1	-	2	1	1	-	2	1	1
Size, no. stages	420				480				560				630				750				900				1100				1300				1700				2100				2500			
Type	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
L	5B	4	2	1	5B	4	2	1	5B	4	3	2	5B	4	3	2	6	5A	3	2	6	5A	3	2	6	5B	4	2	6	5B	4	2	7A	5B	4	3	7B	6	5A	3	7B	6	5A	3
R	-	2	1	1	-	2	1	1	-	2	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-	-	1	-	-	-	2	-	-	-	2

Drive Flange Type DF

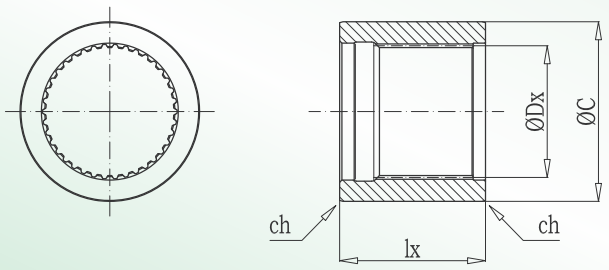


Dimensions, Drive Flange 'DF'															
Type	Dx	lx	ld	A	la	B	db	vb	C	lc	Rc	D2	R2	m (kg)	used on gearbox model
DF 40	40 x 36	55	47	147	12	125	10.5	6 x 60°	60 f7	8	1	70	6	2.2	15, 18 - X12
DF 48	48 x 44	55	47	147	12	125	10.5	6 x 60°	60 f7	8	1	70	6	2.0	22, 28, 32 - X14
DF 58	58 x 53	68	58	166	14	145	12.5	12 x 30°	95 f7	10	1	88	8	3.5	36, 42, 50, 60, 67 - X12
DF 5R	58 x 53	80	70	166	14	145	12.5	12 x 30°	95 f7	10	1	88	8	3.9	36, 42, 50, 60, 67 - X16
DF 70	70 x 64	90	76	208	20	175	19	12 x 30°	125 f7	14	1.5	120	10	8.5	75, 85, 100, 110, 130 - X12
DF 80	80 x 74	90	76	208	20	175	19	12 x 30°	125 f7	14	1.5	120	10	7.6	140, 170 - X12
DF 10	100 x 94	110	90	254	24	212	21	12 x 30°	170 f7	20	2	145	11	14.1	200, 220, 260 - X14 300, 360 - X12
DF 12	120 x 3	130	111	309	31	260	25	12 x 30°	200 f7	19	22	181	12	26.4	420, 480, 560 - X14
DF 13	130 x 3	130	111	309	31	260	28	12 x 30°	200 f7	19	2	181	12	23.8	630 - X12
DF 15	150 x 5	150	131	384	31	320	32	12 x 30°	220 f7	19	3	220	16	41.6	750, 900 - X12
DF 17	170 x 5	170	151	404	36	340	32	16 x 22.5°	240 f7	19	3	240	16	51.1	1100, 1300 - X14
DF 20	200 x 5	200	160	512	50	440	38	18 x 20°	300 f7	40	4	300	20	108.4	1700, 2100 - X12
DF 22	220 x 5	200	160	512	50	440	38	20 x 18°	320 f7	60	4	320	20	125.5	2500 - X14

Material: Alloy steel 42CrMo4 +QT (4140 quenched and tempered).
Custom versions available.

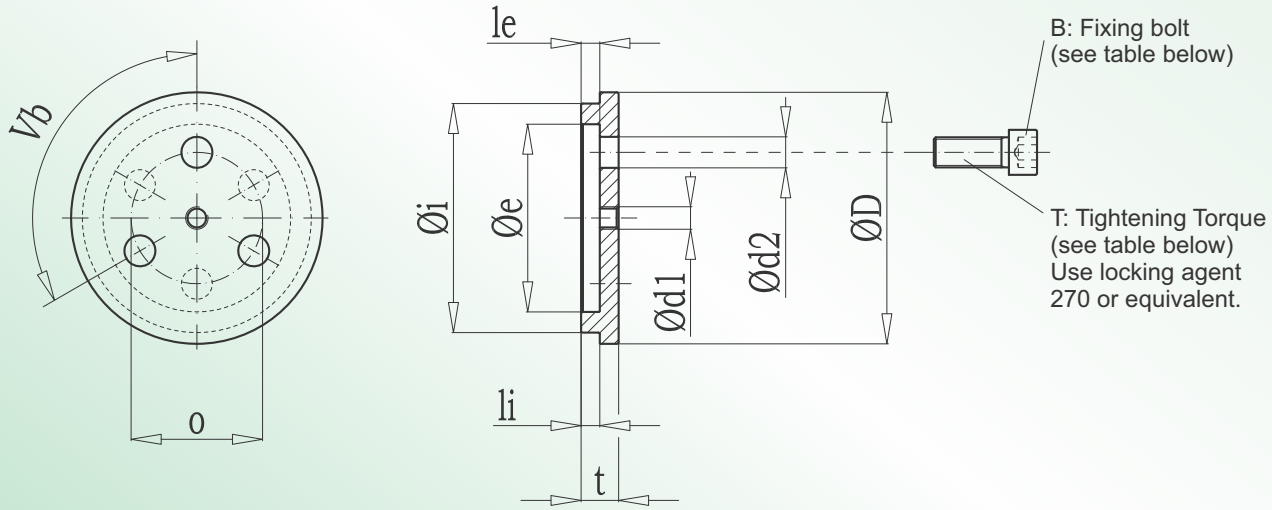
Dimensions, Splined Bushing 'XB'						
Type	Dx	lx	C	ch	m (kg)	used on gearbox model
DF 40	40 x 36	55	60 j7	2 x 15°	0.7	15, 18 - X12
DF 48	48 x 44	55	68 j7	2 x 15°	0.8	22, 28, 32 - X14
DF 58	58 x 53	68	78 j7	2 x 15°	1.2	36, 42, 50, 60, 67 - x12
DF 5R	58 x 53	80	78 j7	2 x 15°	1.4	36, 42, 50, 60, 67 - x16
DF 70	70 x 64	90	95 j7	3 x 15°	2.3	75, 85, 100, 110, 130 - X12
DF 80	80 x 74	90	108 j7	3 x 15°	2.9	140, 170 - X12
DF 10	100 x 94	110	136 j	3 x 15°	5.7	200, 220,260 - X14 300, 360 - X12
XB 12	120 x 3	130	160 j7	3 x 15°	9.1	420, 480, 560 - X14
XB 13	130 x 3	130	195 j7	3 x 15°	16.4	630 - X12
XB 15	150 x 5	150	200 j7	3 x 15°	17.1	750, 900 - X12
XB 17	170 x 5	170	220 j7	3 x 15°	21.4	1100, 1300 - X14
XB 20	200 x 5	200	280 j7	4 x 15°	48.5	1700, 2100 - X12
XB 22	220 x 5	220	290 j7	4 x 15°	50	2500 - X14

Spline bush type XB



Material: Weldable steel ST 52 (E 355, Gr.65)
Carbonitriding necessary to achieve full performance of spline profile.
Custom versions available

Fixing Flange Type FF

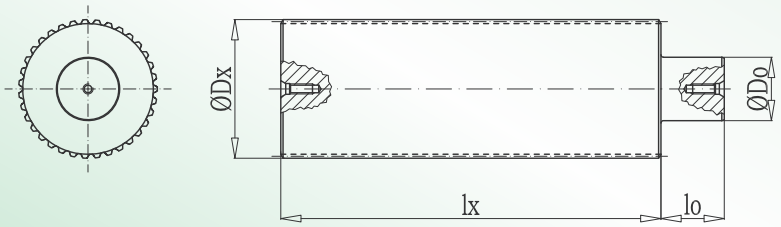


Dimensions, Fixing Flange 'FF'															
Type	D	d1	d2	Vb	e	le	i	li	o	t	B DIN 912	T (Nm)	T (lb-ft)	m (kg)	used on gearbox model
FF 40	49	M6	6.5	3 x 120°	35 K7	5	42 f7	5	24	9	M6 x 16 - 12.9	14	10	0.07	15, 18 - X12
FF 48	58	M8	8.5	3 x 120°	43 K7	5	50 f7	5	29	10	M8 x 20 - 12.9	35	26	0.12	22, 28, 32 - X14
FF 58	69	M8	10.5	3 x 120°	50 K7	9	72 f7	9	40	17	M10 x 25 - 12.9	69	51	0.20	36, 42, 50, 60, 67 - X12, X16
FF 70	79	M10	10.5	3 x 120°	62 K7	9	72 f7	9	40	17	M10 x 25 - 12.9	69	51	0.36	75, 85, 100, 110, 130 - X-12
FF 80	92	M10	12.5	3 x 120°	70 K7	9	82 f7	9	45	17	M12 x 30 - 12.9	120	89	0.49	140, 170 - X12
FF 10	114	M10	14.5	3 x 120°	85 K7	11	105 f7	11	65	21	M14 x 35 - 12.9	190	140	1.01	200, 220, 260 - X14 300, 360 - X12
FF 12	134	M12	16.5	3 x 120°	100 K7	10	122 f7	10	70	20	M16 x 40 - 12.9	295	218	1.35	420, 480, 560 - X14
FF 13	144	M12	16.5	3 x 120°	110 K7	10	132 f7	10	70	20	M16 x 40 - 12.9	295	218	1.53	630 - X12
FF 15	164	M12	16.5	3 x 120°	125 K7	12	151 f7	12	70	22	M16 x 40 - 12.9	295	218	2.13	750, 900 - X12
FF 17	184	M12	16.5	3 x 120°	145 K7	11.5	171 f7	11.5	90	23.5	M16 x 40 - 12.9	295	218	2.13	1100, 1300 - X14
FF 20	226	M16	16.5	6 x 60°	170 K7	19	202 f7	19	140	44	M16 x 60 - 12.9	295	218	9.0	1700, 2100 - X12
FF 22	246	M16	16.5	6 x 60°	190 K7	19	222 f7	19	160	44	M16 x 60 - 12.9	295	218	10.6	2500 - X14

Material: Steel C40 (1040).
Custom versions available.

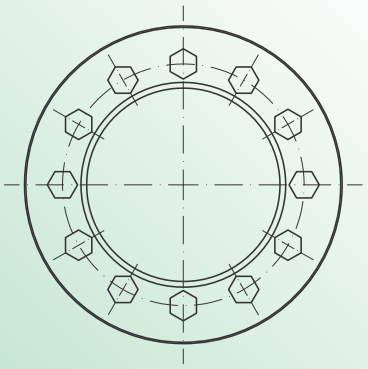
Dimensions, Splined Rod 'ZR'						
Type	Dx	lx	Do	lo	m (kg)	used on gearbox model
ZR 40	40 x 36	230	-	-	2	15, 18 - Z21
ZR 45	45 x 41	230	-	-	2.6	22, 28, 32 - Z23
ZR 58	58 x 53	230	-	-	4.3	36, 42, 50, 60, 67 - Z21
ZR 70	70 x 64	230	-	-	7	75, 85, 100, 110, 130 - Z21
ZR 80	80 x 74	250	30 h9	30	9.2	140, 170 -Z21
ZR 90	90 x 74	250	30 h9	30	11.7	200, 220, 260 - Z23
ZR 10	100 x 94	300	50 h9	50	18	300, 360, 420 - Z21
ZR 11	110 x 3	300	50 h9	50	21.7	480, 560 - Z23
ZR 13	130 x 3	300	50 h9	50	30.2	630 - Z21
ZR 15	150 x 5	300	50 h9	50	39.1	750, 900 - Z21
ZR 16	160 x 5	300	50 h9	50	44.6	1100, 1300 - Z23
ZR 20	200 x 5	400	70 h9	70	95	1700, 2100 - Z21
ZR 21	210 x 5	400	70h9	70	105	2500 - Z23

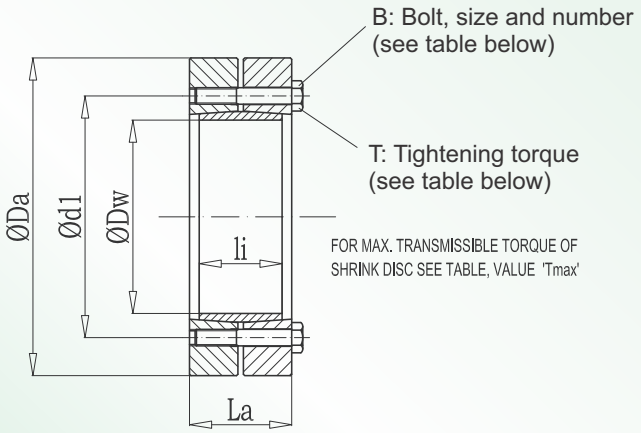
Spline rod type ZR



Material: Alloy steel 42CrMo4 +QT (4140 quenched and tempered).
Custom versions available.

Shrink Disc Type SD

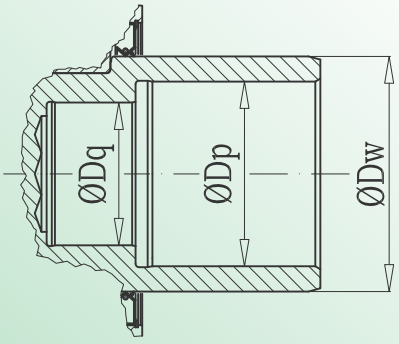




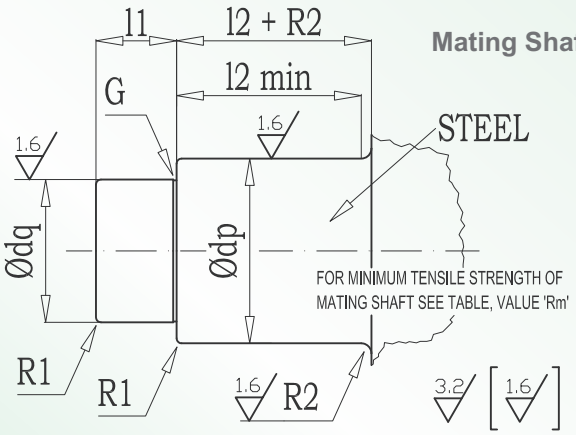
Dimensions, Shrink Disc 'SD'												
Type	Dw	Da	dl	li	La	B	T (Nm)	T (lb-ft)	m (kg)	T max. (Nm)	T max. (ft-lb)	Gearbox Model
SD 60	60	110	86	23	31	8 x M6	12	9	1.3	2300	1700	15, 18, 22, 28, 32 - P24
SD 90	90	155	114	30	39	10 x M8	30	22	3.3	7250	5350	36, 42, 50, 60, 67 - P24
SD 110	110	185	136	39	50	9 x M10	59	44	5.9	10800	7950	75, 85,100, 110, 130 - P24
SD 125	125	215	160	55	65	10 x M12	100	74	11	20000	14750	140, 170, 200, 220, 260 - P20
SD 125	125	215	160	55	65	10 x M12	100	74	11	22500	16600	140, 170, 200, 220, 260 - P24
SD 140	140	230	175	60	74	12 x M12	100	74	13	29500	21750	140, 170, 200, 220, 260 - P24
SD 165	165	290	210	72	88	10 x M16	250	185	26	55000	40550	300, 360, 420, 480, 560 - P24
SD 185	185	330	236	92	112	14 x M16	250	185	47	78000	57550	630 - P22
SD 200	200	350	246	92	112	15 x M16	250	185	50	108000	79650	750, 900 - P22
SD 220	220	370	270	114	134	20 x M16	250	185	65	147000	108400	1100, 1300 - P24
SD 260	260	430	321	136	160	18 x M20	490	360	100	240000	177000	1700, 2100, 2500 - P22

Recommended Dimensions of Mating Shaft

Gearbox Shaft



Mating Shaft



Recommended Dimensions of Mating Shaft									
Type	dq	l1	R1	dp	12 min	R2 min	G (DIN509)	Rm (of mating shaft)	Gearbox Model
SD 60	35 g6	21	2	50 h6	50	3	F1.0 x 0.2	600 Mpa min.	15, 18, 22, 28, 32 - P24
SD 90	50 g6	25	3	75 g6	70	4	F1.0 x 0.2	600 Mpa min.	36, 42, 50, 60, 67 - P24
SD 110	70 g6	52	4	85 g6	90	5	F1.6 x 0.3	600 Mpa min.	75, 85, 100, 110, 130 - P24
SD 125	80 g6	38	4	95 g6	100	5	F1.6 x 0.3	700 Mpa min.	140, 170, 200, 220, 260 - P20
SD 125	85 g6	38	4	100 g6	100	5	F2.5 x 0.4	700 Mpa min.	140, 170, 200, 220, 260 - P22
SD 140	85 g6	38	4	100 g6	100	5	F2.5 x 0.4	700 Mpa min.	140, 170, 200, 220, 260 - P24
SD 165	100 g6	57	5	130 g6	115	6	F2.5 x 0.4	750 Mpa min.	300, 360, 420, 480, 560 - P24
SD 185	110 g6	57	5	140 g6	145	6	F2.5 x 0.4	750 Mpa min.	630 - P22
SD 200	130 g6	62	5	160 g6	160	8	f4.0 x 0.5	750 Mpa min.	750, 900 - P22
SD 220	130 g6	72	5	170 g6	170	8	F4.0 x 0.5	800 Mpa min.	1100, 1300 - P24
SD 260	170 g6	95	5	200 g6	210	8	F4.0 x 0.5	800 Mpa min.	1700, 2100, 2500 - P22

Selection Example 1: Concrete Pump Driven by Hydraulic Motor

Known data:

- Power input via hydraulic motor (radial piston crankshaft design).
- Pressure drop 175 bar
- Motor displacement 154 cm³.
- Total motor efficiency 0.92 (92%).
- Input speed n_1 = 150 rpm.
- Output speed n_2 = 30 rpm.
- Power output via chain drive.
- Sprocket eff. diameter = 127 mm
- Sprocket mounted at 40 mm from shaft shoulder.
- Duty cycle: continuous operation for 30 minutes up to 4 times a day.
- Ambient temperature 40°C, horizontal mounting position.
- Required life: 400 hours/year for 10 years = 4000 hours
- Possible static (external) overload: 250% of nominal load.

1.1 Ratio: $u = \frac{n_1}{n_2} = \frac{150}{30} = 5$

1.2 Transmitted torque: $T_1 = 175 \text{ bar} \times 154 \text{ cm}^3 \times 0.92 / 20p = 394.6 \text{ Nm}$

$T_2 = T_1 \times u = 394.6 \text{ Nm} \times 5 = 1973 \text{ Nm}$

1.3 Application factor: $K_A = 1.5$ (from table 1)

1.4 Radial load on output shaft: $F_R = 1973 \text{ Nm} \times 2000 / 127 \text{ mm} = 31071 \text{ N} = 31 \text{ kN}$

1.5 Shock factor: $K_S = 1.5$ (estimated, same as K_A)

1.6 Service life: $n_2 \times h = 30 \times 4000 = 120000 = 1.2 \times 10^5$

1.7 Life factor gears: $f_G = 0.71$ (from graph 1, page 41, for $n_2 \times h = 1.2 \times 10^5$)

1.8 Life factor bearings: $f_B = 0.47$ (from graph 2, page 41, for $n_2 \times h = 1.2 \times 10^5$)

1.9 Required torque rating: $T_2 \text{ req.} = T_2 \times K_A \times \frac{1}{f_G} = 1973 \times 1.5 \times \frac{1}{0.71} = 4168 \text{ Nm}$

1.10 Adjusted radial shaft load: (at 40 mm from shaft shoulder) $F_R \text{ req.} = F_R \times K_S \times \frac{1}{f_B} = 31 \times 1.5 \times \frac{1}{0.47} = 99 \text{ kN}$

1.11 Selected gearbox: PS 42 - L1 - X16 - 5.1 - G2

ratio 5.1:1; $T_{nom} = 4200$ Nm, $T_{act} = 4300$ Nm, $T_{peak} = 5500$ Nm

$F_R$adm = 108 kN (from bearing chart at 40 mm load distance)

$P_{th} = 7.5$ kW, $P_{max} = 26$ kW

1.12 Verification:

$T_2 \text{ req} = 4168 < T_2\text{act} = 4300 \text{ Nm}$ ← OK

$T_2 \text{ peak} = 2.5 \times 1973 \text{ Nm} = 4933 \text{ Nm} < 5500 \text{ Nm}$ ← OK

$P = \frac{T_1 \times n_1}{9550} = \frac{394.6 \times 150}{9550} = 6.2 \text{ kW} < P_{max} = 26 \text{ Kw}$ ← OK

$P < P_{th} \text{ cor} = 7.5 \text{ kW} \times 1.01 \times 2 = 15.15 \text{ kW}$ ← OK

(with $f_t = 1.01$ from table 3, page 40, $f_v = 2$ from table 4, page 40).

$F_R \text{ req} = 99\text{kN} < F_R \text{ adm} = 108 \text{ kN}$ ← OK

$F_R \text{ peak} = 2.5 \times 31 \text{ kN} = 78 \text{ kN} < F_R \text{ adm} = 108 \text{ kN}$ ← OK

Shaft fatigue: $\frac{31 \text{ kN}}{108 \text{ kN}} \times \frac{1973 \text{ Nm}}{4200 \text{ Nm}} = 0.13 < 0.5$ ← OK

Table 1: Application Factor

Type of loading	Type of loading		
Driven machine	**Uniform** Electric and hydraulic motor	**Light shock** Multi cyl. combustion engine	**Moderate shock** Single cyl. combustion engine
Uniform Agitators and mixers for uniform density, conveyors, generators, small winches.	**1.0 - 1.3**	**1.0 - 1.3**	**1.0 - 1.3**
Moderate shock Crane slewing, travel and hoist, calenders, concrete mixers and pumps, piston pumps.	**1.3 - 1.7**	**1.7 - 2.0**	**2.0 - 2.5**
Heavy shock Crushing machines, excavators, foundry equipment, mills, presses, rolling mills, rotary boring tools.	**1.7 - 2.0**	**2.0 - 2.5**	**2.5 - 3.0**
Start/stop frequency	Fewer ⟷ More	Fewer ⟷ More	Fewer ⟷ More

Table 3: Temperature Factor

ft (--). This is used to adjust the table value of **P** for a choice of ambient temperatures and percentages of usage based on the principle: 1 hour continuous duty = 100% usage

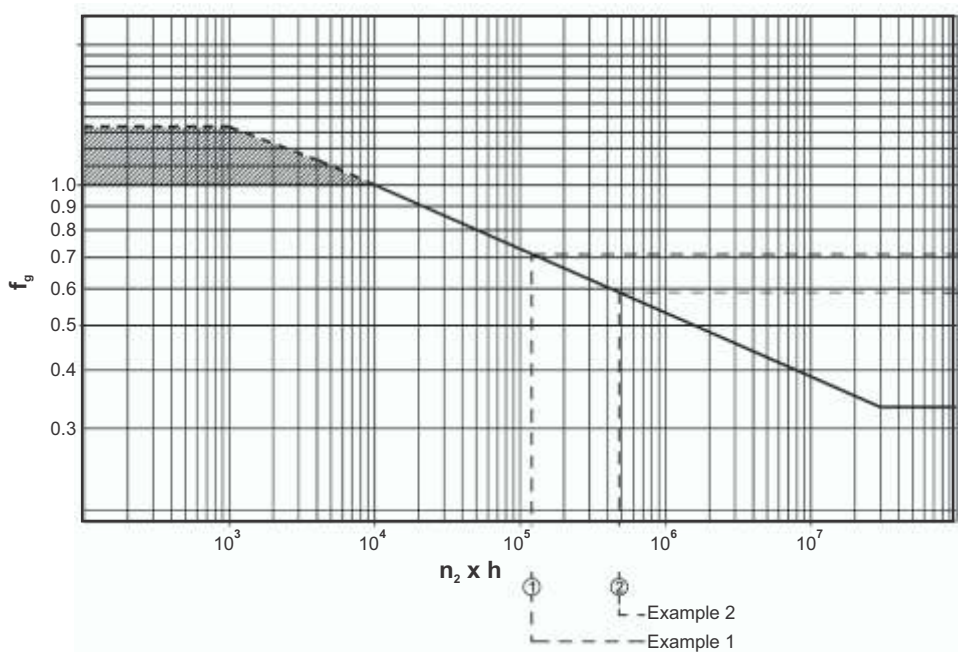
Temperature Factor f_t							
Ambient Temperature:		**0°C**	**10°C**	**20°C**	**30°C**	**40°C**	**50°C**
Percentage of Utilization at Equal Distribution over 1 Hour	100%	1.29	1.14	1.00	0.86	0.71	0.57
	75%	1.48	1.32	1.15	0.99	0.82	0.66
	67%	1.57	1.40	1.22	1.05	0.87	0.70
	50%	1.82	1.62	1.41	1.21	1.01	0.81
	33%	2.24	1.99	1.74	1.49	1.24	0.99
	25%	2.57	2.29	2.00	1.71	1.43	1.14
	20%	2.87	2.56	2.24	1.92	1.60	1.28
	10%	3.00	3.00	3.00	2.71	2.26	1.81

Table 4: Speed Factor

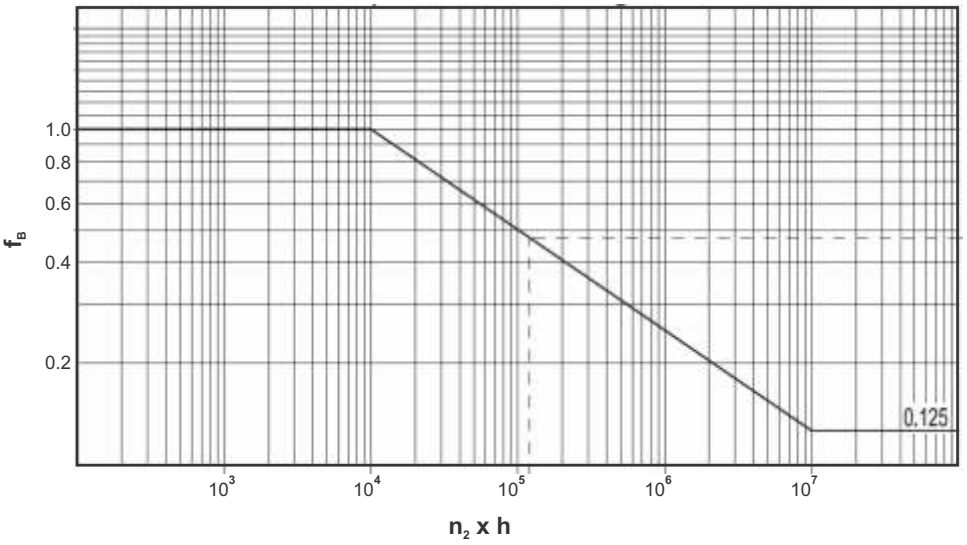
f_v (--). Is used to adjust the table value of P for different input speeds than the rated value of 1500 rpm.

Speed Factor f_v									
Input Speed n_1 (rpm)	**500**	**750**	**1000**	**1250**	**1500**	**1750**	**2000**	**2500**	**3000**
Horizontal Mounting	2.00	1.75	1.50	1.25	1.00	0.88	0.75	0.62	0.50
Vertical Mounting	1.90	1.68	1.41	1.18	0.95	0.82	0.71	0.56	0.43

Graph 1: Gear Life Factors



Graph 2: Bearing Life Factor



Selection Example 2: Concrete Pump driven by Electric Motor with Variable Frequency Drive.

Known data:

- Power input via electric motor (4 pole - IEC 160 B5).
- Installed power 11 kW.
- Actually transmitted power 9.5 kW.
- Motor peak factor = 1.6 limited by VFD.
- Input speed n_1 = 1430 rpm.
- Output speed n_2 = 4 rpm.
- Power output via shrink disc, torque arm length = 1 m.
- Duty cycle: continuous operation for 24 hours, 3 start-ups per day.
- Ambient temperature 30°C, horizontal mounting position.
- Required life: 6000 hours/year for 20 years = 120000 hours.

2.1 Ratio: $u = \frac{n_1}{n_2} = \frac{1430}{4} = 357.5$

2.2 Transmitted torque: $T_2 = \frac{P \times 9550}{n2} = \frac{9.5 \times 9550}{4} = 22681$ Nm

2.3 Application factor: $K_A = 1.2$ (from table 1, page 41)

2.4 Radial load on output shaft: Not applicable due to adequate length of torque reaction arm).

2.5 Shock factor: Not applicable, as above.

2.6 Service life: $n_2 \times h = 4 \times 120000 = 480000 = 4.8 \times 10^5$

2.7 Life factor gears: $f_G = 0.59$ (from graph 1, page 41, for $n_2 \times h = 4.8 \times 10^5$)

2.8 Life factor bearings: Not applicable, as 2.4 above.

2.9 Required torque rating: $T_2 \text{ req.} = T_2 \times K_A \times \frac{1}{f_G} = 22681 \times 1.2 \times \frac{1}{0.59} = 46131$ Nm

2.10 Adjusted radial shaft load: Not applicable, as 2.4 above.

2.11 Selected gearbox: PS 420 - L4 - P24 - 360 - E16
ratio 360:1; T_{nom} = 42000 Nm, T_{act} = 51000 Nm, T_{peak} = 58000 Nm
P_{th} = 12 kW, P_{max} = 30 kW

2.12 Verification: T_2 req = 46131 < T_2act = 51000 Nm ← OK

Gearbox: $T_2 \text{ peak} = 1.6 \times \frac{11 \times 9550}{4} = 42020$ Nm < 58000 Nm ← OK

Shrink disc: T_2 peak = 42020 Nm < 55000 Nm ← OK

P_{peak} = 11 kW < P_{max} = 30 kW ← OK

P = 9.5 kW < P_{th} cor = 12 kW x 0.86 x 1 = 10.3 kW ← OK

(with f_t = 0.86 from table 3, page 40, f_v = 1 from table 4, page 40).

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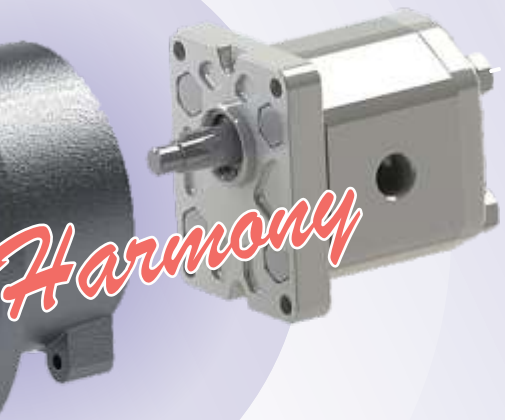


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