Hydraulik Motor CPMS | Hydraulic Motor CPMS

- Modell Verteilerventil mit Geroller
- Geringes Startmoment und hoher Wirkungsgrad
- Hohe Druckfestigkeit
- Internes Rückschlagventil
- Verwendung ohne Leckölanschluss möglich
- Schrägrollenlager für hohe Radialbelastung

- Disk valve type with geroler
- Low starting torque and high efficiency
- Designed for higher pressure
- Internal check valve
- Usage without drain line possible
- Taper roller bearing for high radial load

Technische Daten | Technical Data

Typ Type			CPMS 80	CPMS 100	CPMS 125	CPMS 160	CPMS 200	CPMS 250	CPMS 315	CPMS 400	CPMS 475
Schluckvolumen Displacement	[cm³/rev]		80,6	100,8	125,0	154,0	194,0	243,0	311,0	394,0	475,0
Max. Drehzahl Max. Speed	[RPM]	Dauerbetrieb Continouos working	800	748	600	470	375	300	240	185	155
		Intermittierend (1) Intermittent (1)	988	900	720	560	450	360	280	225	185
Max. Drehmoment Max. Torque	[daNm]	Dauerbetrieb Continouos working	22,5	29,0	36,5	48,5	58,6	70,8	88,0	88,0	91,0
		Intermittierend (1) Intermittent (1)	30,5	39,0	48,0	59,0	70,5	86,0	100,0	98,0	99,0
Max. Leistungsabgabe Max. Output	[kW]	Dauerbetrieb Continouos working	16,0	18,0	18,0	18,1	18,1	18,0	17,0	11,0	9,0
		Intermittierend (1) Intermittent (1)	20,0	22,0	23,0	25,0	24,0	23,8	20,2	12,0	11,0
Max. Druckgefälle Max. Pressure drop	[bar]	Dauerbetrieb Continouos working	205	205	205	210	210	200	200	160	140
		Intermittierend (1) Intermittent (1)	275	275	275	260	250	250	240	190	150
		Spitze (2) Peak (2)	295	295	295	280	270	270	260	210	175
Max. Ölstrom Max. Oil flow	[lpm]	Dauerbetrieb Continouos working	65	75	75	75	75	75	75	75	75
		Intermittierend (1) Intermittent (1)	80	90	90	90	90	90	90	90	90
Max. Eingangsdruck Max. Input pressure	[bar]	Dauerbetrieb Continouos working	250	250	250	250	250	250	250	250	250
		Intermittierend (1) Intermittent (1)	300	300	300	300	300	300	300	300	300
Gewicht Weight	[kg]		9,8	10,0	10,3	10,7	11,1	11,6	12,3	13,2	14,3

(1) Intermittierender Betrieb max. 6 Sekunden / Minute
(2) Spitzenbetrieb max. 0,6 Sekunden / Minute

(1) Intermittend operation rating applies to 6 sec. of every minute
(2) Peak load rating applies to 0,6 sec of every minute

Bestellinformation I Order Information

CPMS	1	2	3	4	5	6	7

Pos. 1	Montageflansch I Mounting flange
Leer **Omit**	Quadratflansch 4-Loch, SAE A-4 Square mount 4 holes, SAE A-4
F	Magnetoflansch 4-Loch Magneto mount 4 holes
Q	Quadratflansch 4-Loch Sqaure mount 4 holes
A	Ovalflansch 2-Loch, SAE A Oval mount 2 holes, SAE A
S	Kurzversion Short version
S1	Kurzversion Quadratflansch Short version square mount
W	Radflansch Wheel mount

Pos. 2	Anschlusstyp I Port type
Leer **Omit**	Seitliche Anschlüsse Side ports
E	Endanschlüsse (auf Anfrage) Rear ports (on request)

Pos. 3	Schluckvolumen I Displacement
80	80,6 cm³/U 80.6 ccm/rev
100	100,8 cm³/U 100.8 ccm/rev
125	125,0 cm³/U 125.0 ccm/rev
160	154,0 cm³/U 154.0 ccm/rev
200	194,0 cm³/U 194.0 ccm/rev
250	243,0 cm³/U 243.0 ccm/rev
315	311,0 cm³/U 311.0 ccm/rev
400	394,0 cm³/U 394.0 ccm/rev
475	475,0 cm³/U 475.0 ccm/rev

Pos. 4	Wellenausführung I Shaft extension
Leer **Omit**	Für Montageflansch S und S1 For mounting flange S and S1
C	Ø32 mm zylindrisch mit Passfeder A10x8x45 Ø32 mm straight with parallel key A10x8x45
CO	Ø31,75 mm (1 ¼") zyl. m. Passfeder 5/16"x5/16"x1 ¼" Ø31.75 mm (1 ¼") str. w. key 5/16"x5/16"x1 ¼"
S	Ø25,32 mm verzahnt (SAE 6B) Ø25.32 mm splined (SAE 6 B)
SH	Ø31,75 mm (1 ¼") verzahnt, 14 Zähne, DP 12/24 Ø31.75 mm (1 ¼") splined, 14T, DP 12/24
KA	Konisch 1:8 SAE J501 m. Passfeder 5/16"x5/16"x1 ¼" Conical 1:8 SAE J501 w. key 5/16"x5/16"x1 ¼"
SB	Ø31,75 mm (1 ¼") verz., 14 Z., ANSI B92.1-1976 Ø31.75 mm (1 ¼") splined, 14T, ANSI B92.1-1976
SL	Ø34,85 mm P.T.O DIN 9611 Form 1 Ø34.85 mm P.T.O DIN 9611 Form 1
K	Konisch 1:10 mit Passfeder B6x6x20 Conical 1:10 with key B6x6x20
C25	Ø25 mm zylindrisch mit Passfeder A8x7x32 Ø25 mm straight with parallel key A8x7x32

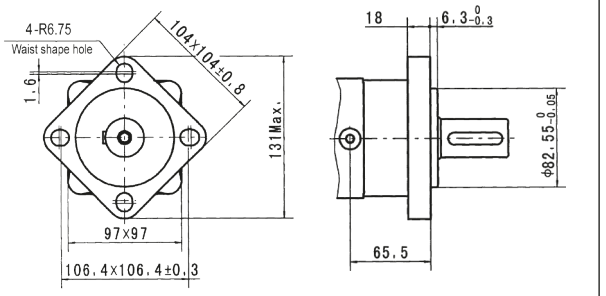
Pos. 5	Anschluss Gewinde I Port thread
Leer **Omit**	BSPP
M	Metrisch Metric
S	SAE - UNF
P	SAE - NPTF

Pos. 6	Lackierung I Painting
Leer **Omit**	Grau Grey
RAL...	+ RAL-Farbnummer (z.B. 7021) + RAL-Colour code (e.g. 7021)

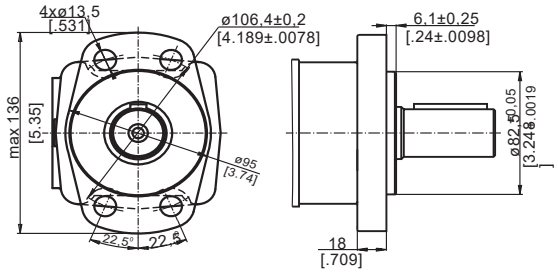
Pos. 7	Drehrichtung I Rotation direction
Leer **Omit**	Standarddrehrichtung Standard rotation
R	Umgekehrte Drehrichtung Reverse rotation

Montageflansch | Mounting flange

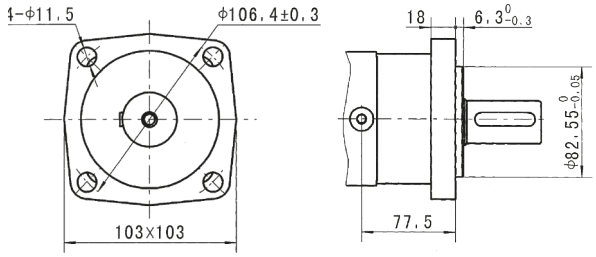
Leer Quadratflansch 4-Loch, SAE A-4
Omit Square mount 4 holes, SAE A-4



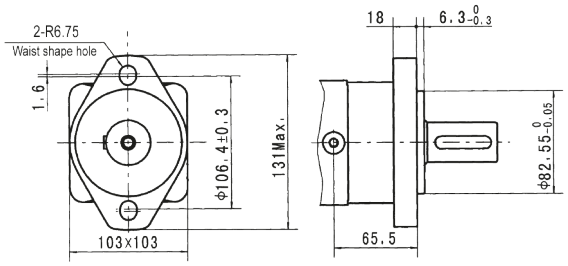
F Magnetoflansch 4-Loch
Magneto mount 4 holes



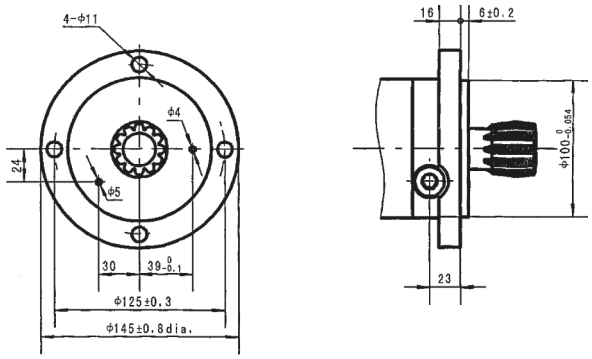
Q Quadratflansch 4 Schrauben
Square mount 4 bolts



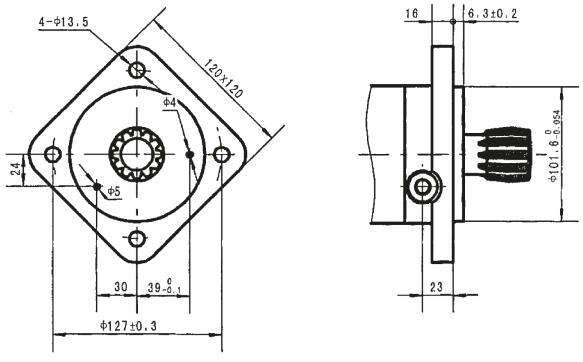
A Ovalflansch 2-Loch, SAE A
Oval mount 2 holes, SAE A



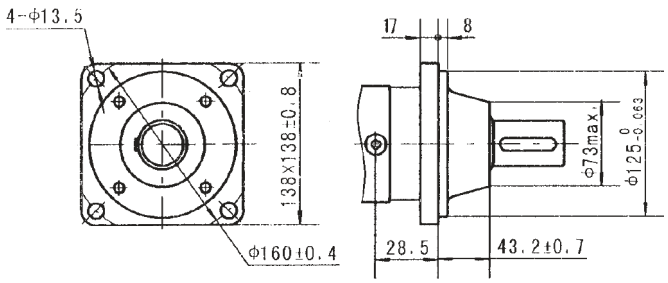
S Kurzversion
Short version



S1 Kurzversion, Quadratflansch
Short version square mount

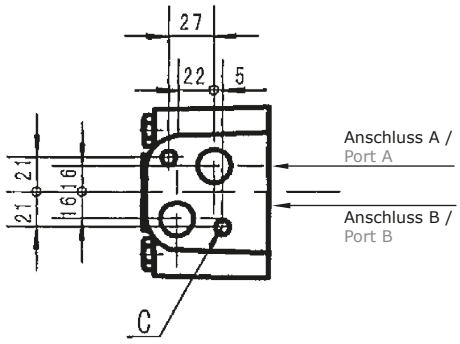


W	Radflansch Wheel mount



Anschlusstyp | Port type

Leer **Omit**	Seitliche Anschlüsse Side ports



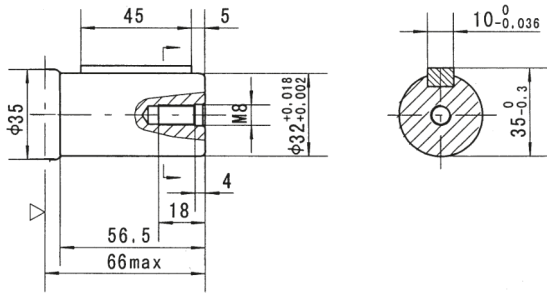
E	Endanschlüsse (Abmessungen auf Anfrage) Rear ports (Dimensions on request)

Anschluss Gewinde | Port thread

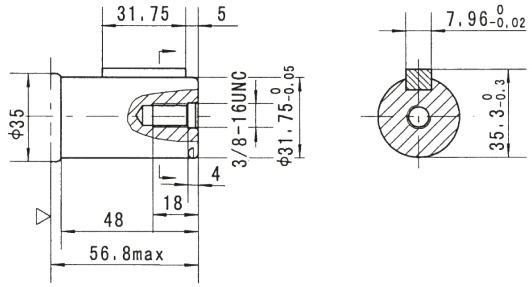
Option **Option**	**Anschluss** **Port**		
	P (A, B)	T	C
Leer Omit	G ½"	G ¼"	M10
M	M22 x 1,5	M14 x 1,5	M10
S	7/8-14 UNF	7/16-20 UNF	3/8-16 UNC
P	½-14 NPTF	7/16-20 UNF	3/8-16 UNC

Wellenausführung | Shaft extension

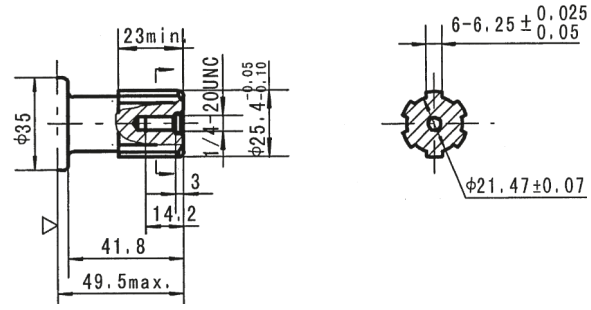
C — Ø32 mm zylindrisch mit Passfeder A10x8x45 / Ø32 mm straight with parallel key A10x8x45 — Max. Drehmoment: 77 daNm / Max. Torque: 77 daNm



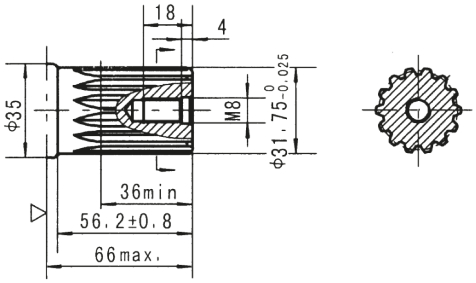
CO — Ø31,75 mm (1 ¼") zyl. m. Passfeder 5/16"x5/16"x1 ¼" / Ø31.75 mm (1 ¼") str. w. key 5/16"x5/16"x1 ¼" — Max. Drehmoment: 77 daNm / Max. Torque: 77 daNm



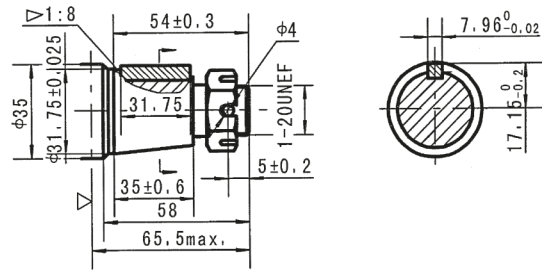
S — Ø25,32 mm verzahnt (SAE 6B) / Ø25.32 mm splined (SAE 6 B) — Max. Drehmoment: 34 daNm / Max. Torque: 34 daNm



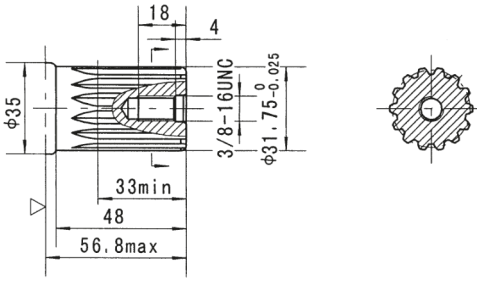
SH — Ø31,75 mm (1 ¼") verzahnt, 14 Zähne, DP 12/24 / Ø31.75 mm (1 ¼") splined, 14T, DP 12/24 — Max. Drehmoment: 77 daNm / Max. Torque: 77 daNm



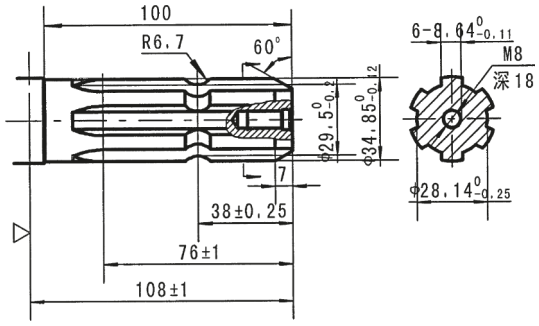
KA Konisch 1:8 SAE J501 m. Passfeder 5/16"x5/16"x1 1/4" — Max. Drehmoment: 77 daNm
Conical 1:8 SAE J501 w. key 5/16"x5/16"x1 1/4" — Max. Torque: 77 daNm



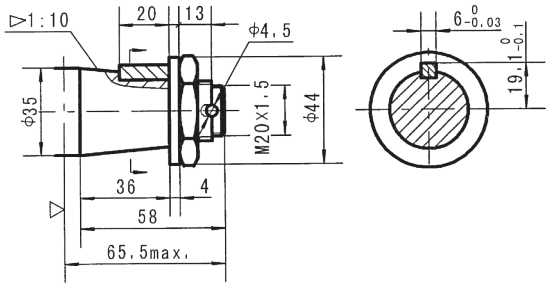
SB Ø31,75 mm (1 1/4") verzahnt, 14 Zähne, DP 12/24 — Max. Drehmoment: 77 daNm
Ø31.75 mm (1 1/4") splined, 14T, DP 12/24 — Max. Torque: 77 daNm



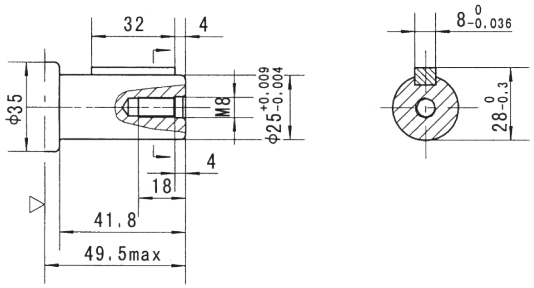
SL Ø34,85 mm P.T.O. DIN 9611 Form 1 — Max. Drehmoment: 77 daNm
Ø34.85 mm P.T.O. DIN 9611 Form 1 — Max. Torque: 77 daNm



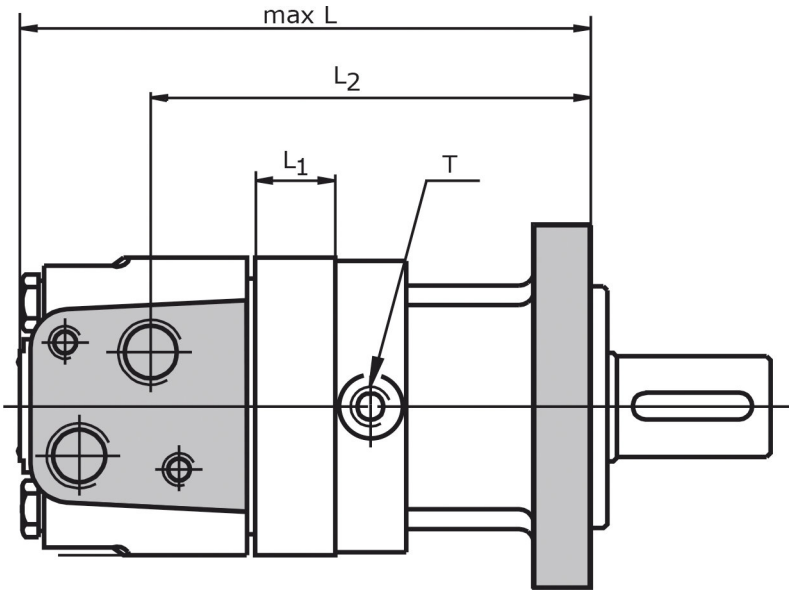
K Konisch 1:10 mit Passfeder B6x6x20 — Max. Drehmoment: 95 daNm
Conical 1:10 with key B6x6x20 — Max. Torque: 95 daNm



C25	Ø25 mm zylindrisch mit Passfeder A8x7x32 Ø25 mm straight with parallel key A8x7x32	Max. Drehmoment: 34 daNm Max. Torque: 34 daNm

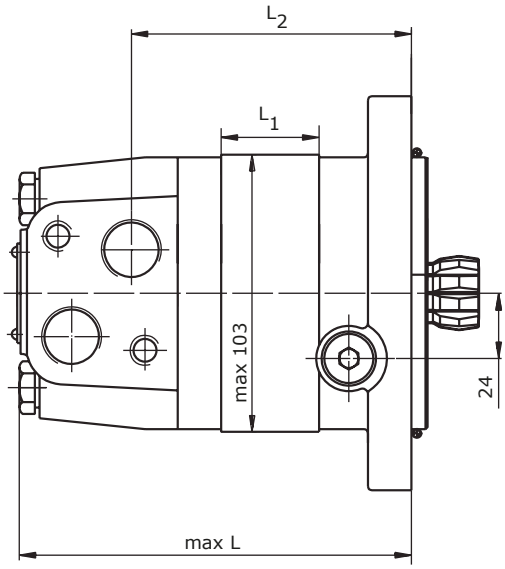


Abmessungen CPMS | Dimensions CPMS



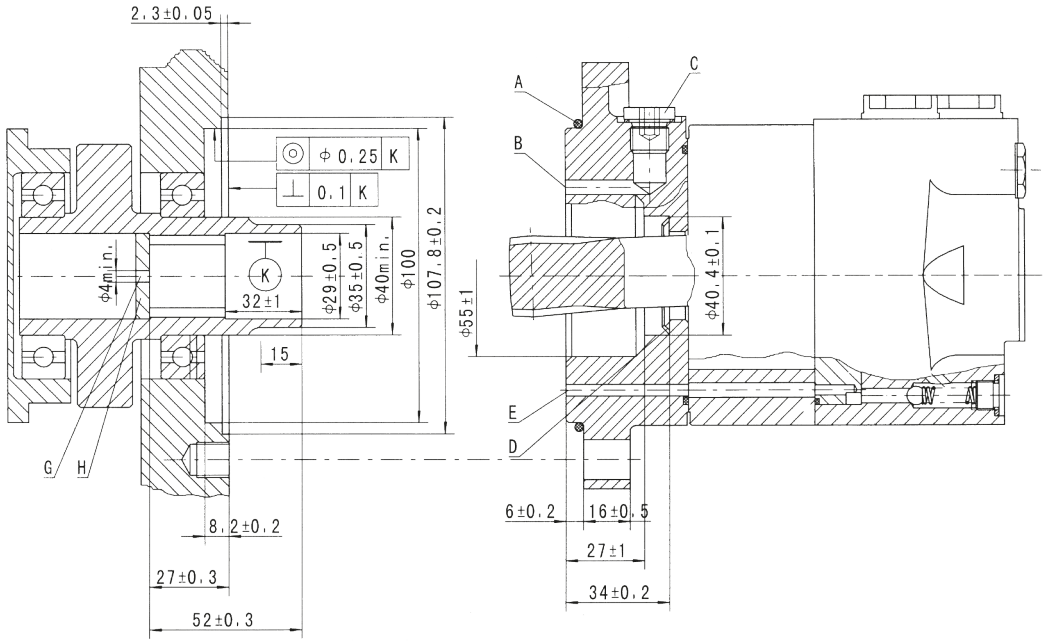
Typ Type	L	L_2	Typ Type	L	L_2	Typ Type	L	L_2	L_1
CPMS(F),(A) 80	170,0	126,5	CPMSQ 80	182,0	138,5	CPMSW 80	132,5	89,0	16,0
CPMS(F),(A) 100	174,0	130,5	CPMSQ 100	186,0	142,5	CPMSW 100	136,5	93,0	20,0
CPMS(F),(A) 125	179,0	135,5	CPMSQ 125	191,0	147,5	CPMSW 125	141,5	98,0	25,0
CPMS(F),(A) 160	181,0	137,5	CPMSQ 160	193,0	149,5	CPMSW 160	143,5	100,0	27,0
CPMS(F),(A) 200	188,0	144,5	CPMSQ 200	200,0	156,5	CPMSW 200	150,5	107,0	34,0
CPMS(F),(A) 250	196,0	152,5	CPMSQ 250	208,0	164,5	CPMSW 250	158,5	115,0	42,0
CPMS(F),(A) 315	208,0	164,5	CPMSQ 315	220,0	176,5	CPMSW 315	170,5	127,0	54,0
CPMS(F),(A) 400	223,0	179,5	CPMSQ 400	235,0	191,5	CPMSW 400	185,5	142,0	69,0
CPMS(F),(A) 475	237,0	193,5	CPMSQ 475	249,0	205,5	CPMSW 475	199,5	156,0	83,0

Abmessungen CPMSS | Dimensions CPMSS

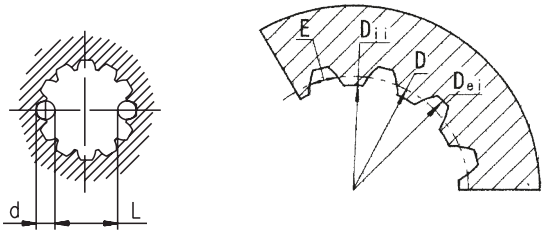


Typ Type	L	L_2	L_1
CPMSS(1) 80	129,0	85,0	16,0
CPMSS(1) 100	133,0	89,0	20,0
CPMSS(1) 125	138,0	94,0	25,0
CPMSS(1) 160	140,0	96,0	27,0
CPMSS(1) 200	147,0	103,0	34,0
CPMSS(1) 250	155,0	111,0	42,0
CPMSS(1) 315	167,0	123,0	54,0
CPMSS(1) 400	182,0	138,0	69,0
CPMSS(1) 475	196,0	152,0	83,0

Anbaumaße | Mounting



A: O-ring 100x3
A: O-ring 100x3
B: Äußerer Leckölanschluss
B: External drain channel
C: Leckölanschluss G 1/4", 12mm tief
C: Drain connection G 1/4", 12mm deep
D: Konischer Dichtring
D: Conical seal ring
E: Interner Leckölanschluss
E: Internal Drain channel
F: M10; min. 15mm tief
F: M10; min. 15mm deep
G: Ölzirkulationsloch
G: Oil circulation hole
H: Gehärtete Anschlagssplatte
H: Hardened stop plate



Verzahnungsgeometrie Fillet Root Side Fit		mm
Zähnezahl Number of Teeth	z	12
Steigung Diametral Pitch	DP	12/24
Anpresswinkel Pressure Angle	a_D	30°
Nenndurchmesser Pitch Diameter	D	25.4
Hauptdurchmesser Major Diameter	D_{ri}	$28.0^{-0.1}$
Zahngrund Minor Diameter	D_i	$23.0^{+0.033}$
Abstand Zahngrund Space Width (Circular)	L_0	4.308±0.020

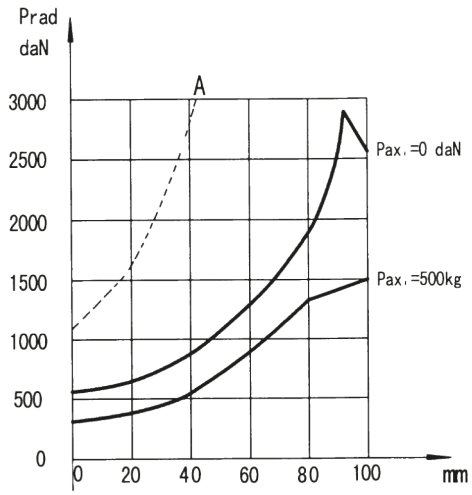
Härtespezifikation: HRC 62±2
Hardening Specification: HRC 60±2

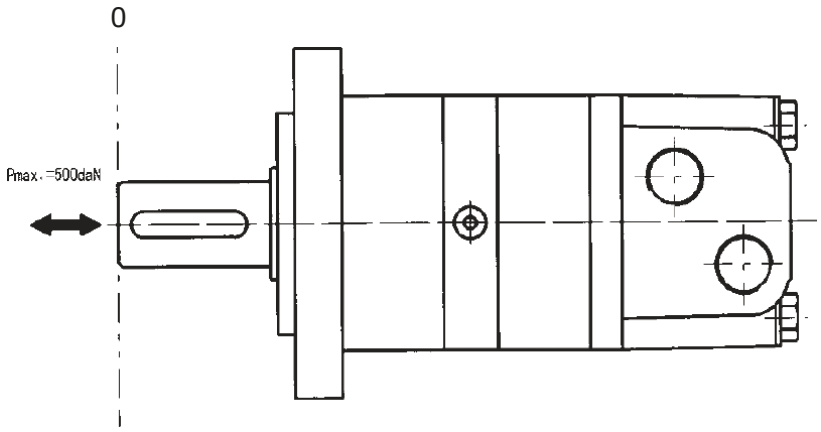
Effektive Härtetiefe: 0,7±0,2mm
Effective case depth (HRC 52): 0,7±0,2mm

Radiale Wellenbelastung CPMS | Radial shaft load CPMS

Die zulässige Radiallast berechnet sich aus dem Abstand L zwischen Kraftangriffspunkt und der Montagefläche des Flansches.

The permissible radial shaft load is calculated from the distance L between the point load application and the mounting surface.





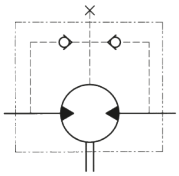
Durch die integrierten Schrägrollenlager sind die Motoren vom Typ CPMS in der Lage hohe Axial- und Radialkräfte aufzunehmen. Die gestrichelte Linie im obigem Diagramm zeigt die maximal zulässige Radialkraft. Belastungen oberhalb dieser Grenze können zum Bruch der Welle führen. Die durchgezogenen Linien zeigen die zulässigen Radialbelastungen bei einer Lebensdauer von 3000h in Abhängigkeit von der Drehzahl.

The tapered roller bearings on the output shaft of motors CPMS can accept high levels of axial and radial load. The broken curve shows the maximum permissible radial load. Loads above and beyond this level can lead to breakage. The solid curve plots the permissable radial loads for a theoretical service life of 3000 hours depending on the shaft rotation speed.

Rücklaufdruck | Return pressure

Dauerbetrieb Continuous	175 bar
Kurzzeitig Intermittent	210 bar
Spitze Peak	225 bar

Max. Rücklaufdruck mit Leckölleitung
Max. return pressure with drain line



Leckölanschluss
Drain Line

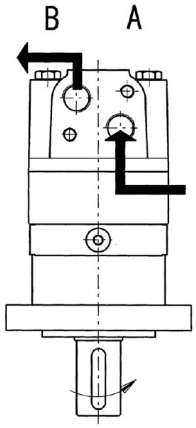
Drehzahl RPM	Dauerdruck (bar) cont. Pressure
0-100	75
100-300	50
300-1000	25

Max. Rücklaufdruck ohne Leckölleitung bzw. max. Druck in der Leckölleitung
Max. return pressure without drain line or max. pressure in drain line

Drehrichtung | Rotation direction

Standarddrehrichtung
mit Blick auf Abtriebswelle
Druck auf Anschluss **A** - rechtsdrehend
Druck auf Anschluss **B** - linksdrehend

Standard rotation
Viewed from shaft end
Port **A** pressurized- right running
Port **B** pressurized- left running



Leistungsdaten CPMS | Performance data CPMS

CPMS 80

Durchflussmenge [lpm] Oil flow	Druck [bar] Pressure 35	70	105	140	175	205 Max. cont.	225 Max. int.	
15	3,5 **180**	8,0 **174**	12,0 **168**	15,8 **164**	19,5 **158**	22,8 **151**	24,9 **143**	daNm **RPM**
30	3,5 **362**	8,0 **352**	12,0 **346**	15,8 **338**	19,5 **330**	23,2 **322**	26,0 **310**	
40	3,5 **487**	7,9 **480**	11,9 **468**	15,5 **457**	19,3 **446**	22,7 **438**	25,0 **425**	
50	3,0 **612**	7,7 **603**	11,7 **592**	15,3 **581**	19,2 **572**	22,4 **558**	24,8 **542**	
60	2,8 **735**	7,7 **726**	11,7 **718**	15,3 **703**	19,2 **687**	22,4 **673**	24,3 **646**	
Max. cont. 65	2,6 **794**	7,5 **786**	11,6 **773**	15,1 **760**	18,8 **744**	21,7 **722**	23,6 **706**	
Max. int. 80	2,4 **981**	7,2 **968**	10,9 **955**	14,2 **925**	17,6 **893**	20,6 **870**	22,7 **832**	

CPMS 100

Durchflussmenge [lpm] Oil flow	Druck [bar] Pressure 35	70	105	140	175	205 Max. cont.	225 Max. int.	
15	4,8 **146**	9,5 **144**	15,0 **139**	20,0 **135**	25,0 **130**	28,2 **120**	31,0 **105**	daNm **RPM**
30	4,5 **291**	9,4 **289**	14,6 **278**	19,8 **274**	25,0 **269**	29,0 **258**	31,7 **242**	
40	4,3 **387**	8,9 **384**	14,2 **374**	19,6 **359**	24,8 **350**	28,8 **335**	31,6 **320**	
50	4,0 **486**	8,8 **483**	13,5 **473**	19,4 **462**	24,7 **450**	28,6 **430**	31,5 **420**	
60	3,7 **588**	8,8 **584**	13,2 **574**	18,5 **562**	24,4 **550**	28,3 **538**	31,2 **520**	
Max. cont. 75	3,5 **740**	8,0 **735**	13,0 **720**	18,0 **705**	24,0 **696**	27,9 **676**	31,0 **653**	
Max. int. 90	3,0 **850**	7,5 **840**	12,4 **810**	17,0 **787**	23,6 **770**	27,1 **750**	30,3 **747**	

CPMS 125

Durchflussmenge [lpm] Oil flow	Druck [bar] Pressure 35	70	105	140	175	205 Max. cont.	225 Max. int.	
15	5,5 **115**	12,0 **113**	17,6 **110**	24,5 **104**	30,9 **98**	34,5 **90**	37,5 **84**	daNm **RPM**
30	5,5 **231**	12,0 **228**	17,5 **223**	25,0 **214**	31,5 **202**	36,4 **188**	40,4 **172**	
40	5,3 **312**	11,8 **309**	17,8 **290**	25,0 **289**	31,5 **278**	36,4 **262**	40,3 **235**	
50	5,0 **391**	11,5 **386**	17,6 **378**	24,8 **365**	31,5 **352**	36,2 **339**	39,7 **308**	
60	4,5 **469**	11,3 **461**	17,1 **450**	24,1 **437**	30,8 **425**	35,8 **400**	39,7 **372**	
Max. cont. 75	4,5 **588**	11,0 **574**	16,7 **560**	24,0 **544**	30,6 **526**	35,2 **505**	38,9 **481**	
Max. int. 90	4,0 **710**	10,5 **696**	16,2 **680**	23,7 **661**	30,1 **646**	34,3 **628**	37,8 **610**	

CPMS 160

Durchflussmenge [lpm] Oil flow	Druck [bar] Pressure 35	70	105	140	175	210 Max. cont.	225 Max. int.	
15	7,0 **91**	14,2 **91**	21,5 **89**	29,8 **85**	37,2 **80**	43,5 **76**	47,6 **58**	daNm **RPM**
30	7,3 **189**	15,1 **187**	22,5 **181**	31,2 **176**	38,2 **170**	45,6 **162**	49,2 **153**	
40	7,5 **252**	15,2 **250**	22,8 **246**	31,4 **239**	38,3 **234**	45,4 **228**	48,8 **212**	
50	7,0 **313**	14,8 **310**	22,5 **306**	30,5 **298**	37,2 **293**	44,5 **285**	48,0 **272**	
60	6,8 **378**	14,3 **376**	21,8 **370**	29,6 **362**	37,0 **353**	44,2 **346**	48,0 **332**	
Max. cont. 75	6,2 **475**	14,0 **469**	21,1 **461**	29,1 **450**	36,5 **441**	43,9 **432**	47,5 **414**	
Max. int. 90	5,9 **567**	13,1 **561**	20,2 **554**	28,6 **543**	35,7 **532**	42,5 **520**	46,0 **509**	

CPMS 200

Durchflussmenge [lpm] / Oil flow	Druck [bar] / Pressure 35	70	105	140	175	Max. cont. 210	Max. int. 225	
15	8,7 **74**	17,9 **73**	27,3 **71**	37,1 **68**	47,1 **64**	56,2 **60**	61,0 **48**	daNm **RPM**
30	9,1 **150**	19,0 **148**	28,8 **143**	38,6 **140**	48,9 **134**	57,2 **128**	61,8 **119**	
40	9,4 **198**	19,3 **195**	29,6 **192**	39,4 **188**	49,8 **183**	58,4 **178**	64,5 **167**	
50	9,0 **248**	19,1 **246**	29,2 **241**	38,9 **236**	49,3 **230**	58,0 **223**	63,4 **212**	
60	8,5 **300**	18,5 **295**	27,9 **288**	38,2 **281**	48,3 **273**	57,5 **263**	62,2 **251**	
Max. cont. 75	7,8 **374**	17,6 **370**	27,1 **364**	37,0 **360**	47,2 **352**	56,1 **340**	61,0 **331**	
Max. int. 90	6,8 **443**	16,3 **440**	26,5 **435**	36,1 **428**	45,6 **424**	54,5 **413**	59,9 **400**	

CPMS 250

Durchflussmenge [lpm] / Oil flow	Druck [bar] / Pressure 35	70	105	140	175	Max. cont. 200	Max. int. 225	
15	11,0 **59**	23,1 **58**	35,1 **56**	46,2 **53**	58,5 **50**	68,1 **64**	77,8 **35**	daNm **RPM**
30	11,6 **119**	23,6 **117**	35,9 **114**	47,5 **108**	59,7 **102**	70,0 **92**	79,0 **80**	
40	11,8 **162**	24,1 **159**	36,3 **156**	48,0 **150**	59,9 **143**	70,6 **134**	79,6 **121**	
50	11,1 **203**	23,4 **201**	35,2 **197**	47,2 **191**	59,1 **182**	69,3 **173**	78,8 **158**	
60	10,6 **244**	22,4 **242**	34,5 **237**	46,2 **230**	58,2 **220**	68,5 **208**	77,2 **194**	
Max. cont. 75	10,1 **303**	21,4 **299**	34,0 **294**	45,4 **285**	57,0 **272**	67,0 **260**	76,0 **244**	
Max. int. 90	9,3 **363**	20,9 **359**	33,5 **354**	44,7 **348**	55,9 **340**	65,7 **328**	74,9 **303**	

CPMS 315

Durchflussmenge [lpm] / Oil flow	Druck [bar] / Pressure 35	70	105	140	175	200	Max. cont. 225	Max. int.	
15	14,8 **48**	30,4 **47**	45,6 **45**	61,3 **43**	76,2 **41**	87,9 **39**	97,8 **27**		daNm **RPM**
30	15,5 **95**	31,4 **93**	46,5 **91**	63,5 **89**	77,8 **86**	88,4 **82**	98,8 **67**		
40	16,0 **127**	32,1 **125**	47,9 **121**	65,0 **117**	76,6 **115**	90,6 **109**	99,7 **91**		
50	15,5 **159**	31,4 **157**	46,5 **153**	63,8 **149**	78,0 **145**	88,6 **142**	98,8 **128**		
60	15,1 **187**	30,6 **185**	45,3 **181**	62,0 **176**	76,5 **169**	88,6 **157**	97,6 **143**		
Max. cont. 75	14,6 **238**	30,0 **236**	44,5 **232**	61,3 **227**	75,5 **224**	87,5 **220**	96,6 **196**		
Max. int. 90	13,5 **286**	28,4 **283**	43,6 **278**	60,1 **272**	74,0 **265**	86,3 **257**	95,2 **232**		

CPMS 400

Durchflussmenge [lpm] / Oil flow	Druck [bar] / Pressure 35	70	105	140	160	Max. cont. 175	Max. int.	
15	18,6 **37**	37,9 **36**	57,8 **35**	77,9 **33**	89,6 **31**	98,6 **29**		daNm **RPM**
30	19,0 **75**	38,8 **73**	59,0 **71**	79,1 **68**	90,5 **65**	99,1 **61**		
40	19,5 **99**	39,4 **97**	59,6 **95**	79,7 **93**	91,2 **90**	99,8 **85**		
50	19,1 **125**	38,8 **123**	58,7 **118**	78,5 **114**	90,4 **109**	98,3 **102**		
60	18,6 **149**	38,8 **146**	58,7 **142**	78,5 **137**	90,4 **131**	98,3 **122**		
Max. cont. 75	18,1 **187**	37,2 **183**	57,6 **177**	77,0 **171**	89,1 **164**	97,3 **153**		
Max. int. 90	17,6 **226**	36,7 **221**	57,1 **214**	76,6 **208**	88,3 **199**	96,5 **183**		

CPMS 475

Durchflussmenge [lpm] Oil flow	Druck [bar] Pressure 35	70	105	Max. cont. 140	Max. int. 150	
15	21,8 **30**	43,9 **29**	66,1 **28**	89,2 **27**	99,5 **25**	daNm **RPM**
30	22,3 **61**	45,0 **60**	67,6 **58**	91,0 **56**	100,2 **53**	
40	22,8 **82**	46,1 **80**	68,9 **77**	92,7 **74**	101,7 **68**	
50	22,4 **103**	45,6 **101**	68,2 **97**	92,0 **92**	100,8 **86**	
60	22,0 **123**	45,1 **121**	67,7 **118**	91,3 **112**	99,8 **105**	
Max. cont. 75	21,2 **155**	44,3 **153**	66,4 **147**	90,1 **140**	98,0 **132**	
Max. int. 90	19,6 **186**	42,1 **184**	64,3 **178**	87,7 **170**	95,9 **157**	