

Couplings

-Slit Set Screw Short / Short / Slit Clamping/ Short-

Price Reduction
Max. 5%

Price Reduction
Max. 11%

Features: Because backlash is 0, it is suitable for applications where rotation accuracy is required.

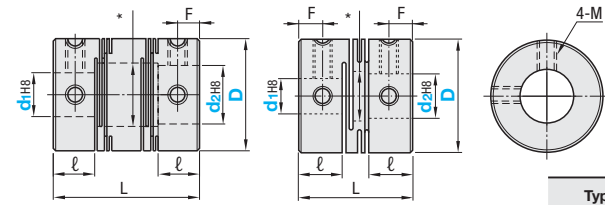
For higher torque capacities, see Disc Type. P963-964

Slit Set Screw Type



CPL (Aluminum - Standard Type)
CPLS (Stainless Steel - Standard Type)

CPS (Aluminum - Short Type)
CPSS (Stainless Steel - Short Type)



4-M
- When d1 is less than 4mm and d2 is more than 5mm, there are 3 set screws.
- When both d1 and d2 are less than 4mm, there are 2 set screws.

The lateral, angular, and axial misalignment values shown are for each occurring separately alone. If more than one misalignment are occurring simultaneously, allowable value will be reduced to 1/2 each.
For the selection criteria and alignment procedures, see P961

Type	Material	Surface Treatment	Accessory
CPL, CPS	Aluminum Alloy	Anodizing	Set Screw
CPLS, CPSS	Stainless Steel	-	-

*d1, d2 Identical Diameter=d1+0.5
d1, d2 Different Diameters=Large Shaft Diameter+0.5

Part Number	Type	D	d1	d2				L	l	M	F	€ Unit Price			
				CPL	CPS	CPLS	CPSS					CPL	CPLS	CPS	CPSS
CPL (Aluminum)	8	2	2	3				14	10	M2	1.7				
				3											
				4											
	12	4	4	5				18.5	14	M2.5	2.5				
				5											
				6											
	16	5	5	6				23	18	M3	3				
				8											
				10											
	20	6	6	8				26	20	M3	3				
				10											
				12											
25	8	8	10				31	25	M4	4					
			12												
			14												
32	10	10	12				41	32	M4	6					
			14												
			16												
40	12	12	14				56	-	M5	8.5					
			16												
			18												

CPS and CPSS are available in * marked sizes only.

Part Number	Type	D	Allowable Torque (Nm)	Max Rotational Speed (r/min)	Moment of Inertia (Kg-m ²)	Static Torsional Spring Constant (Nm/rad)	Allowable Lateral Misalignment (mm)	Allowable Angular Misalignment (°)	Allowable Axial Misalignment (mm)	Screw Tightening Torque (Nm)	Mass (g)
CPL (Aluminum)	8	2	0.1	78000	1.2x10 ⁻⁸	25	0.10	2	±0.2	0.3	1.4
		12	0.4	52000	8.3x10 ⁻⁸	45	±0.3	0.5	3.7		
		16	0.5	39000	3.3x10 ⁻⁷	80	±0.4	0.7	8.1		
	25	2	31000	9.0x10 ⁻⁷	170	±0.5	1.7	27			
		4	19000	9.6x10 ⁻⁶	500	±0.5	4	60			
		8	15000	3.2x10 ⁻⁵	700	0.20	4	130			

Part Number	Type	D	Allowable Torque (Nm)	Max Rotational Speed (r/min)	Moment of Inertia (Kg-m ²)	Static Torsional Spring Constant (Nm/rad)	Allowable Lateral Misalignment (mm)	Allowable Angular Misalignment (°)	Allowable Axial Misalignment (mm)	Screw Tightening Torque (Nm)	Mass (g)
CPS (Aluminum)	8	2	0.1	78000	1.0x10 ⁻⁸	24	1	±0.1	0.3	1	
		12	0.4	52000	7.0x10 ⁻⁸	80	±0.1	0.5	3.1		
		16	0.5	39000	2.8x10 ⁻⁷	180	±0.2	0.7	7.4		
	25	1	31000	7.5x10 ⁻⁷	200	±0.2	1.7	24			
		2	25000	2.3x10 ⁻⁶	780	±0.2	1.7	24			
		4	19000	8.0x10 ⁻⁶	1100	±0.2	1.7	50			

CPS does not allow eccentricity.

Part Number	Type	D	Allowable Torque (Nm)	Max Rotational Speed (r/min)	Moment of Inertia (Kg-m ²)	Static Torsional Spring Constant (Nm/rad)	Allowable Lateral Misalignment (mm)	Allowable Angular Misalignment (°)	Allowable Axial Misalignment (mm)	Screw Tightening Torque (Nm)	Mass (g)
CPLS (Stainless Steel)	8	2	0.2	78000	3.1x10 ⁻⁸	50	0.10	2	±0.2	0.3	3
		12	0.3	52000	2.1x10 ⁻⁷	64	±0.3	0.5	9.3		
		16	0.5	39000	8.4x10 ⁻⁷	85	±0.3	0.7	21		
	25	1	31000	2.4x10 ⁻⁶	250	±0.4	1.7	71			
		2	25000	6.8x10 ⁻⁶	330	±0.4	1.7	160			
		4	19000	2.6x10 ⁻⁵	850	±0.5	4	350			

Part Number	Type	D	Allowable Torque (Nm)	Max Rotational Speed (r/min)	Moment of Inertia (Kg-m ²)	Static Torsional Spring Constant (Nm/rad)	Allowable Lateral Misalignment (mm)	Allowable Angular Misalignment (°)	Allowable Axial Misalignment (mm)	Screw Tightening Torque (Nm)	Mass (g)
CPSS (Stainless Steel)	8	2	0.2	78000	2.4x10 ⁻⁸	49	1	±0.1	0.3	2.7	
		12	0.3	52000	1.8x10 ⁻⁷	140	±0.1	0.5	7.8		
		16	0.5	39000	7.2x10 ⁻⁷	240	±0.1	0.7	18		
	25	1	31000	2.0x10 ⁻⁶	330	±0.2	1.7	32			
		2	25000	6.1x10 ⁻⁶	720	±0.2	1.7	63			
		4	19000	2.1x10 ⁻⁵	1300	±0.2	1.7	130			

CPSS does not allow eccentricity.

Features: Because backlash is 0, it is suitable for applications where rotation accuracy is required.

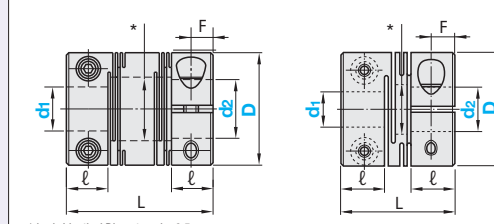
For higher torque capacities, see Disc Type. P963-964

Slit Clamping Type



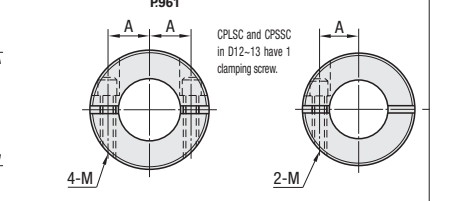
CPLCN (Aluminum - Standard Type)
CPLSC (Stainless Steel - Standard Type)

CPSCN (Aluminum - Short Type)
CPSSC (Stainless Steel - Short Type)



*d1, d2 Identical Diameter=d1+0.5
d1, d2 Different Diameters=Large Shaft Diameter+0.5
d1, d2 tolerances are values before slits are machined.

The lateral, angular, and axial misalignment values shown are for each occurring separately alone. If more than one misalignment are occurring simultaneously, allowable value will be reduced to 1/2 each.
For the selection criteria and alignment procedures, see P961



Type	Material	Surface Treatment	Accessory
CPLCN, CPSCN	Aluminum Alloy	Anodizing	Hexagon Socket Screw
CPLSC, CPSSC	Stainless Steel	-	-

Part Number	Type	D	d1	d2				L	l	M	A	F	€ Unit Price			
				CPLCN	CPSCN	CPLSC	CPSSC						CPLCN	CPLSC	CPSCN	CPSSC
CPLCN (Aluminum)	12	4	4	5				18.5	14	M2	4	2.5	2.6			
				5												
				6												
	16	5	5	6				23	18	M2.5	5	3.25	3.4			
				8												
				10												
	20	6	6	8				26	20	M2.5	6.5	3.75	3.8			
				10												
				12												
	25	8	8	10				31	25	M3	9	4.25	4.8			
				12												
				14												
32	10	10	12				41	32	M4	11	6	6.3				
			14													
			16													
40	12	12	14				56	-	M5	14	8.5	-				
			16													
			18													

CPSCN and CPSSC are available in * marked sizes only.

Part Number	Type	D	Allowable Torque (Nm)	Max Rotational Speed (r/min)	Moment of Inertia (Kg-m ²)	Static Torsional Spring Constant (Nm/rad)	Allowable Lateral Misalignment (mm)	Allowable Angular Misalignment (°)	Allowable Axial Misalignment (mm)	Screw Tightening Torque (Nm)	Mass (g)
CPLCN (Aluminum)	12	4	0.4	52000	7.8x10 ⁻⁸	45	0.10	2	±0.3	0.5	3.6
		16	0.5	39000	3.4x10 ⁻⁷	80	±0.4	1	9.2		
		20	1	31000	9.1x10 ⁻⁷	170	±0.5	1.5	28		
	25	2	25000	2.6x10 ⁻⁶	380	±0.5	2.5	64			
		4	19000	9.7x10 ⁻⁶	500	±0.5	4	140			
		8	15000	3.3x10 ⁻⁵	700	0.20	4	370			

Part Number	Type	D	Allowable Torque (Nm)	Max Rotational Speed (r/min)	Moment of Inertia (Kg-m ²)	Static Torsional Spring Constant (Nm/rad)	Allowable Lateral Misalignment (mm)	Allowable Angular Misalignment (°)	Allowable Axial Misalignment (mm)	Screw Tightening Torque (Nm)	Mass (g)
CPSCN (Aluminum)	12	4	0.4	52000	6.4x10 ⁻⁸	80	1	±0.1	0.5	3	
		16	0.5	39000	2.9x10 ⁻⁷	180	±0.2	1	8		
		20	1	31000	7.5x10 ⁻⁷	200	±0.2	1.5	25		
	25	2	25000	2.3x10 ⁻⁶	780	±0.2	2.5	64			
		4	19000	8.1x10 ⁻⁶	1100	±0.2	2.5	150			
		8	15000	2.2x10 ⁻⁵	1300	±0.2	2.5	150			

CPSCN does not allow eccentricity.

Part Number	Type	D	Allowable Torque (Nm)	Max Rotational Speed (r/min)	Moment of Inertia (Kg-m ²)	Static Torsional Spring Constant (Nm/rad)	Allowable Lateral Misalignment (mm)	Allowable Angular Misalignment (°)	Allowable Axial Misalignment (mm)	Screw Tightening Torque (Nm)	Mass (g)
CPLSC (Stainless Steel)	12	4	0.3	52000	2.2x10 ⁻⁷	64	0.10	2	±0.2	0.5	10
		16	0.5	39000	9.0x10 ⁻⁷	85	±0.3	1	25		
		20	1	31000	2.5x10 ⁻⁶	250	±0.4	1.5	78		
	25	2	25000	7.1x10 ⁻⁶	330	±0.5	2.5	170			
		4	19000	2.7x10 ⁻⁵	850	±0.5	4	370			
		8	15000	9.0x10 ⁻⁵	1000	0.20	4	370			

Part Number	Type	D	Allowable Torque (Nm)	Max Rotational Speed (r/min)	Moment of Inertia (Kg-m ²)	Static Torsional Spring Constant (Nm/rad)	Allowable Lateral Misalignment (mm)	Allowable Angular Misalignment (°)	Allowable Axial Misalignment (mm)	Screw Tightening Torque (Nm)	Mass (g)
CPSSC (Stainless Steel)	12	4	0.3	52000	1.8x10 ⁻⁷	140	1	±0.1	0.5	8.5	
		16	0.5	39000	7.8x10 ⁻⁷	240	±0.2	1	21		
		20	1	31000	2.1x10 ⁻⁶	330	±0.2	1.5	69		
	25	2	25000	6.3x10 ⁻⁶	720	±0.2	2.5	150			
		4	19000	2.2x10 ⁻⁵	1300	±0.2	2.5	150			
		8	15000	2.2x10 ⁻⁵	1300	±0.2	2.5	150			

CPSSC does not allow eccentricity.

Order Example: Part Number - Shaft Bore Dia. d1 - Shaft Bore Dia. d2
CPL16 - 5 - 6

Days to Ship: 8 Days
Express A 2,00 EUR/ piece P88

A Express Charge of 5,40 EUR for 3 or more identical pieces.

Price: Volume Discount (Round down to one Cent.) P87
Rate € Unit Price 5% 10%

Couplings

-Rigid Set Screw · Clamping-

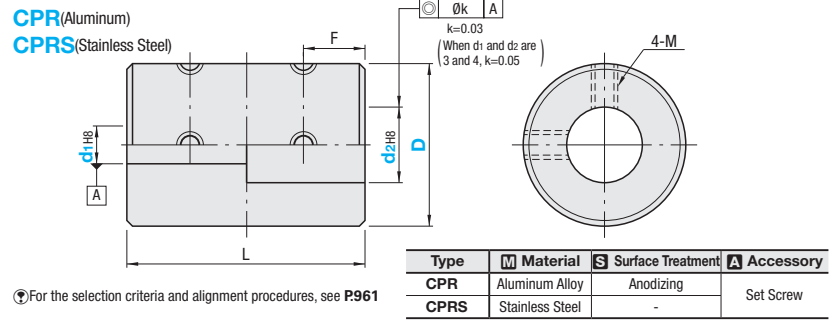
CAD Data

The Rigid Type cannot tolerate any lateral and angular misalignments. Adequate centering is required before use.

Set Screw



RoHS



For the selection criteria and alignment procedures, see P961

Part Number	Type	D	d1, d2 select (must be d1 ≤ d2)	L	M (Coarse)	F	€ Unit Price	
							CPR	CPRS
CPR (Aluminum)	16	3 4 5 6		24	M3	6		
CPRS (Stainless Steel)	25	8 10 11 12		36	M4	9		
CPR (Aluminum)	40	15 16 18 20		44	M5	10.5		

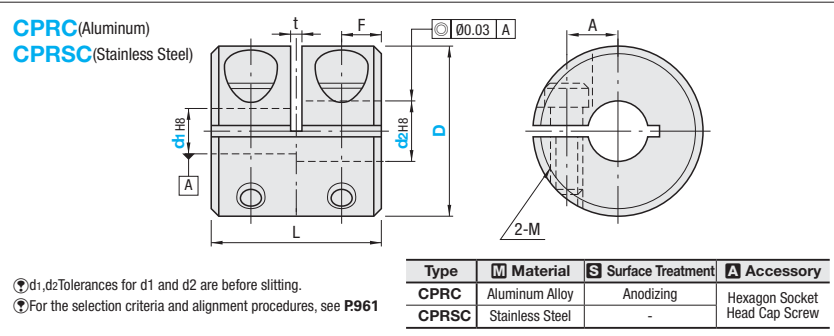
Part Number	Type	D	Allowable Torque (Nm)	Max. Rotational Speed (r/min)	Inertia Moment of Inertia (Kg·m ²)	Screw Tightening Torque (Nm)	Mass (g)
	20	0.5	19000	1.3x10 ⁻⁶	1.7	20	
	25	1	15000	3.9x10 ⁻⁶	4	39	
	32	2	12000	1.2x10 ⁻⁵	7	71	
	40	4	4000	1.5x10 ⁻⁵	12	120	
CPRS (Stainless Steel)	16	0.3	24000	1.2x10 ⁻⁶	0.7	28	
	20	0.5	19000	3.5x10 ⁻⁶	1.7	54	
	25	1	15000	1.0x10 ⁻⁶	4	100	
	32	2	12000	3.1x10 ⁻⁶	7	190	

Recommended tolerance of applicable shaft diameter: h6 and h7.

Clamping Type



RoHS



d1, d2 Tolerances for d1 and d2 are before slitting.
For the selection criteria and alignment procedures, see P961

Part Number	Type	D	d1, d2 select (must be d1 ≤ d2)	L	M (Coarse)	A	t	F	€ Unit Price	
									CPRC	CPRSC
CPRC (Aluminum)	16	5 6		16	M2.5	5	1	3.75		
CPRSC (Stainless Steel)	25	8 10		25	M3	9	1	6		
CPRC (Aluminum)	40	14 15 16 18		44	M5	13	1.5	10.5		
CPRC (Aluminum)	50	18 20 24		55	M6	16	2	13		

Part Number	Type	D	Allowable Torque (Nm)	Max. Rotational Speed (r/min)	Inertia Moment of Inertia (Kg·m ²)	Screw Tightening Torque (Nm)	Mass (g)
	20	0.5	7600	8.7x10 ⁻⁷	1.5	15	
	25	1	6100	2.7x10 ⁻⁶	2.5	29	
	32	2	4800	7.1x10 ⁻⁶	7	61	
	40	4	4000	1.5x10 ⁻⁵	12	120	
	50	6	4000	7.0x10 ⁻⁵	24	240	
CPRSC (Stainless Steel)	16	0.3	9500	8.0x10 ⁻⁷	1	22	
	20	0.5	7600	2.4x10 ⁻⁶	1.5	41	
	25	1	6100	7.3x10 ⁻⁶	2.5	80	
	32	2	4800	2.5x10 ⁻⁵	7	160	

Order Example: Part Number - Shaft Bore Dia. d1 - Shaft Bore Dia. d2
CPRC25 - 8 - 10

Days to Ship: 8 Days

Express A 2,00 EUR/piece P. 88
A Express Charge of 5,40 EUR for 3 or more identical pieces.

Price

Volume	Rate	€ Unit Price
5-9	1-4	30%
10-19	5-9	40%
20-49	10-19	50%

For orders larger than indicated quantity, please request a quotation.

Volume Discount (Round down to one Cent.) P. 87

Volume	Rate	€ Unit Price
5-9	1-9	5%
10-14	10-14	10%
15-19	15-19	18%

For orders larger than indicated quantity, please request a quotation.

Couplings

-Rigid Separate Type · Clamping Long Type-

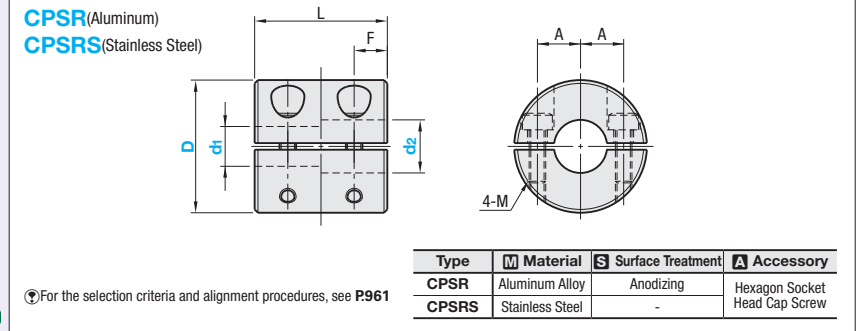
CAD Data

The Rigid Type cannot tolerate any lateral and angular misalignments. Adequate centering is required before use.

Split



RoHS



For the selection criteria and alignment procedures, see P961

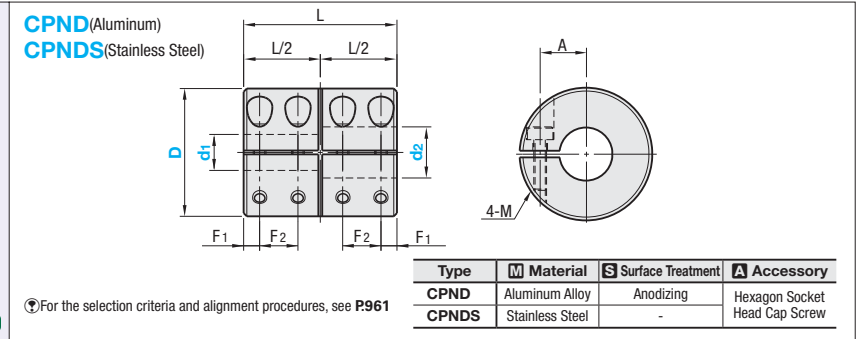
Part Number	Type	D	d1, d2 select (must be d1 ≤ d2)	L	F	A	M	€ Unit Price	
								CPSR	CPSRS
CPSR (Aluminum)	16	5 6		16	3.75	5	M2.5		
CPSRS (Stainless Steel)	20	6 8		20	4.75	6.5	M3		
CPSR (Aluminum)	25	8 10		25	6	9	M3		
CPSRS (Stainless Steel)	32	10 12 14		32	7.75	11	M4		

Part Number	Type	D	Allowable Torque (Nm)	Max. Rotational Speed (r/min)	Inertia Moment of Inertia (Kg·m ²)	Thread Tightening Torque (Nm)	Mass (g)
	20	0.5	31000	8.7x10 ⁻⁷	1.5	15	
	25	1	25000	2.7x10 ⁻⁶	2.5	29	
	32	2	19000	9.3x10 ⁻⁶	2.5	61	
CPSRS (Stainless Steel)	16	0.3	39000	8.2x10 ⁻⁷	1	22	
	20	0.5	31000	2.4x10 ⁻⁶	1.5	41	
	25	1	25000	7.3x10 ⁻⁶	1.5	80	
	32	2	19000	2.5x10 ⁻⁵	2.5	160	

Clamping Long



RoHS



For the selection criteria and alignment procedures, see P961

Part Number	Type	D	d1, d2 select (must be d1 ≤ d2)	L	F1	F2	A	M	€ Unit Price	
									CPND	CPNDS
CPND (Aluminum)	16	5 6		22	2.5	5.5	5	M2		
CPNDS (Stainless Steel)	20	6 8		24	4.5	9	9	M2.5		
CPND (Aluminum)	25	8 10		36	4	10	11	M3		
CPNDS (Stainless Steel)	32	10 12 14		40	4	10	11	M3		

Part Number	Type	D	Allowable Torque (Nm)	Max. Rotational Speed (r/min)	Inertia Moment of Inertia (Kg·m ²)	Thread Tightening Torque (Nm)	Mass (g)
	20	0.5	31000	9.2x10 ⁻⁷	1	18	
	25	1	25000	3.4x10 ⁻⁶	1.5	38	
	32	2	19000	1.0x10 ⁻⁵	1.5	70	
CPNDS (Stainless Steel)	16	0.3	39000	8.9x10 ⁻⁷	0.5	25	
	20	0.5	31000	2.5x10 ⁻⁶	1	45	
	25	1	25000	9.2x10 ⁻⁶	1	100	
	32	2	19000	2.7x10 ⁻⁵	1.5	180	

Order Example: Part Number - Shaft Bore Dia. d1 - Shaft Bore Dia. d2
CPSR25 - 8 - 10

Days to Ship: 8 Days

Express A 2,00 EUR/piece P. 88
A Express Charge of 5,40 EUR for 3 or more identical pieces.

Price

Volume	Rate	€ Unit Price
5-9	1-9	5%
10-12	10-12	10%
13-14	13-14	18%

For orders larger than indicated quantity, please request a quotation.

Couplings

-Bellows Set Screw Type / Clamping Type-

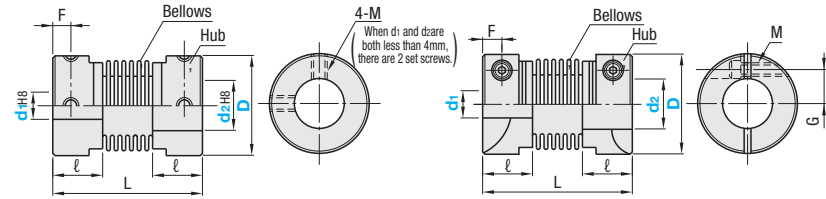
CAD Data

Features: Suitable for encoders because of its speed constancy even with misalignment. Allowable end play is big and can absorb the shaft length changes caused by temperature changes in the shaft.



Set Screw
CPB (Aluminum)
CPBS (Stainless Steel)

Clamping type
CPBC (Aluminum)
CPBSC (Stainless Steel)



① d1, d2 tolerance are values before slit machining.
 ② The lateral, angular, and axial misalignment values shown are for each occurring separately alone. If more than one misalignment is occurring simultaneously, allowable value will be reduced to 1/2 each.
 ③ For the selection criteria and alignment procedures, see P961

Parts	Hub		Bellows	Accessory	
	Material	Surface Treatment	Material	CPB, CPBS	CPB, CPBSC
CPB, CPBC	Aluminum Alloy	Anodizing	Phosphor Bronze	Set Screw	Hexagon Socket Head Cap Screw
CPBS, CPBSC	Stainless Steel	-	Stainless Steel	-	-

Part Number	Type	D	d1, d2 select (must be d1 ≤ d2)				L	ℓ	F	Set Screw		€ Unit Price	
			M	Tightening Torque (Nm)	CPB	CPBS							
Set Screw CPB CPBS	12	3	4	5	6	23.5	7.5	2.5	M2.5	0.5			
	16		4	5	6	26.5	9	3	M3	0.7			
	*20		5	6	8	33 (32)	10	3.5					
	25			6	8	10	36.5	12	4.5	M4	1.7		
	32			6	8	10	42	13.5	5.5				

④ O.A.L. of CPBSC20 is 32.

Part Number	Type	D	d1, d2 select (must be d1 ≤ d2)				L	ℓ	F	G	Clamp Screw		€ Unit Price	
			M	Tightening Torque (Nm)	CPBC	CPBSC								
Clamping type CPBC CPBSC	12	4	5			23.5	7.5	2.3	4	M2	0.5			
	16		5	6		26.5	9	3	5	M2.5	1			
	*20			6	8	33 (32)	10	3.5	6.5					
	25				8	10	36.5	12	4.5	9	M3	1.5		
	32				8	10	42	13.5	5	11	M4	2.5		

⑤ Full length of CPBSC20 is (32).

Part Number	Type	D	Allowable Torque (Nm)	Allowable Angular Misalignment (°)	Allowable Lateral Misalignment (mm)	Static Torsional Spring Constant (Nm/rad)	Max Rotational Speed (r/min)	Moment of Inertia (Kg-m ²)	Allowable Axial Misalignment	Mass (g)
CPB (Aluminum)	12	0.3	0.5	1.5	0.10	82	52000	9.0x10 ⁻⁸	+0.4	4
	16	0.5	0.8	2	0.15	110	39000	3.5x10 ⁻⁷	-1.2	9
	20	0.8	1.3	2	0.20	180	31000	9.9x10 ⁻⁷	+0.6	16
	25	1.3	2	2	0.20	240	25000	3.1x10 ⁻⁶	-1.8	32
CPBS (Stainless Steel)	12	0.3	0.5	1.5	0.10	330	19000	9.2x10 ⁻⁸	-2.8	57
	16	0.5	1	1.5	0.10	100	52000	2.1x10 ⁻⁷	+0.4	9
	20	0.8	1.3	2	0.15	150	39000	8.0x10 ⁻⁷	-1.2	20
	25	1.3	2	2	0.20	220	31000	2.3x10 ⁻⁶	+0.6	37
CPBC (Aluminum)	12	0.3	0.5	1.5	0.10	490	19000	2.1x10 ⁻⁵	-2.8	130
	16	0.5	0.8	2	0.15	82	52000	9.7x10 ⁻⁸	+0.4	4
	20	0.8	1.3	2	0.20	110	39000	3.7x10 ⁻⁷	-1.2	10
	25	1.3	2	2	0.20	180	31000	1.0x10 ⁻⁶	+0.6	16
CPBSC (Stainless Steel)	12	0.3	0.5	1.5	0.10	240	25000	3.1x10 ⁻⁶	-1.8	32
	16	0.5	1	1.5	0.10	330	19000	9.6x10 ⁻⁸	+0.4	9
	20	0.8	1.3	2	0.15	490	19000	2.1x10 ⁻⁵	-2.8	130
	25	1.3	2	2	0.20	82	52000	9.7x10 ⁻⁸	+0.4	4

Order Example: Part Number - Shaft Bore Dia. d1 - Shaft Bore Dia. d2
CPB20 - 6 - 8

Days to Ship: **8 Days**

Express A 2,00 EUR/piece P88

Volume Discount (Round down to one Cent.) P87

5-9	1-9	10-12	13, 14	15-19
Rate	€ Unit Price	5%	10%	18%

For orders larger than indicated quantity, please request a quotation.

Keyway Dimension

Shaft Bore Dia. d1, d2	LK, RK	b Reference Dia.	t Reference Dia.	Key Nominal Dims. b x t
8, 10	3	3	±0.0125	1.4
10-12	4	4	1.8	+0.1
12-14	5	5	±0.0150	2.3

Alterations

Part Number	Shaft Bore Dia. d1 (LDC)	Shaft Bore Dia. d2 (RDC)	(LK, RK)
CPB16	LDC5.5	RDC6.5	-
CPBSC32	10	12	LK4

8 Days Express Services not available.

Type	CPB · CPBS	CPB · CPBSC	CPB · CPBS · CPBC · CPBSC
Alterations	Shaft Bore Dia.	Shaft Bore Dia.	Keyway
Spec.	0.1mm Increment Ordering Code LDC7.5 RDC9.5	0.1mm Increment Ordering Code LDC7.5 RDC9.5	CPB, CPBS CPB, CPBSC Ordering Code LK5 RK3
Code	LDC (Left Shaft)	RDC (Right Shaft)	LK (Left Shaft) / RK (Right Shaft)
Price Adder	15,00	15,00	9,00 / 9,00

Couplings

-Plastic Type / Short Plastic Type-

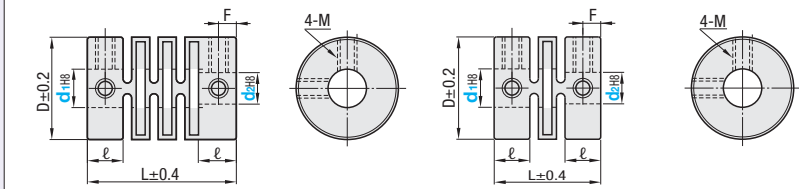
CAD Data

Features: Economical couplings for low torque applications. Suitable for encoders and potentiometers where little torque is required.



MCJN

MCJSN (Short Type)



Operating Temperature -20°C~80°C
 The lateral, angular, and axial misalignment values shown are for each occurring separately alone. If more than one misalignment is occurring simultaneously, allowable value will be reduced to 1/2 each.
 For the selection criteria and alignment procedures, see P961

Type	Material	Accessory
MCJN	Glass Fiber Reinforced PBT Resin	Set Screw
MCJSN	PBT Resin	-

Part Number	Type	No.	d1	d2	D	L	ℓ	F	Set Screw		€ Unit Price	
									MxLength	Tightening Torque (Nm)		
MCJN	9	1.5	1.5		9	11.4	3.2	1.6	M2x4	0.08		
	10	1.5	2.5		10	11.8	5.1	1.7	M3x4	0.15		
	12	3	3		12	20	5.1	2.6				
	14	4	2.5	3 3.2 4		13.5	21	5.3	M3x5	0.2		
	15	5	3 3.2 4 5		15	20.5	5.5	2.7				
	16	6	3 3.2 4 5 6		16	21	5.5	2.7	M4x6	0.4		
	20	8	4 5 6 8		20	24	6.8	3.5				
	22	10		10		22	25.6	7.1	3.6	M4x8	0.5	
	28	12		12		28	34.4	7.5	3.9			

Part Number	Type	No.	d1	d2	D	L	ℓ	F	Set Screw		€ Unit Price
									MxLength	Tightening Torque (Nm)	
MCJSN	8	2	2		8	9	3.2	1.6	M2x3	0.05	
	12	2.5	3		12	14.5	5.3	2.6	M3x4	0.18	
	14	4	3.2		14	14.2	5.2	2.6			
	15	6	2.4	3.2 4 5 6		15	15.5	5.5	M3x5	0.25	
	18	8	4 5 6 8		18	17.8	5.5	2.6			

Order Example: Part Number - Shaft Bore Dia. d1 - Shaft Bore Dia. d2
MCJN20 - 8 - 6

Days to Ship: **8 Days**

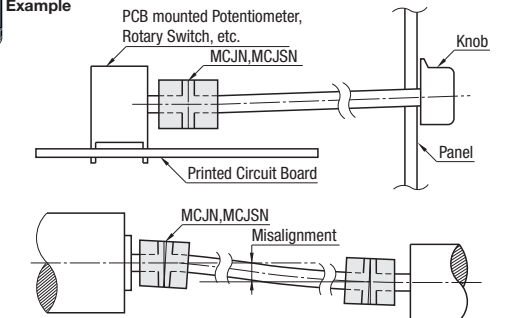
Express A 2,00 EUR/piece P88

Volume Discount (Round down to one Cent.) P87

5-9	1-4	5-9	10-19	20-49
Rate	€ Unit Price	40%	50%	60%

For orders larger than indicated quantity, please request a quotation.

- Cautions
- Do not handle as if it were of metal. The couplings are high in reliability for light loading applications. They are suitable for volumes and encoders.
 - Do not apply undue bending and torsional forces during installation. Observe the set screw tightening torque limits. (Resin material breaks if the tightening torque exceeds the allowable range)
 - The couplings are proven with heat-run tests to show 10 years of service life and 10⁸ revolutions if kept under the allowable torque and misalignment values.

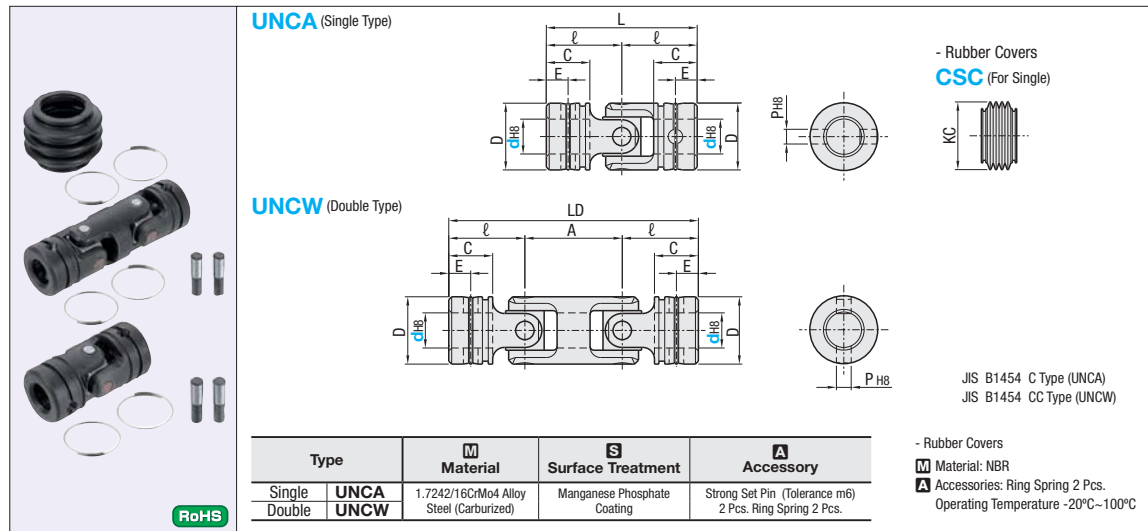


(Note)1. For small misalignment, use one MCJ Series for connection.
 2. For big misalignment, use two MCJ Series for connection.

Universal Joints

-Set Pin-

CAD Data



UNCA (Single Type)
UNCW (Double Type)

- Rubber Covers
CSC (For Single)

JIS B1454 C Type (UNCA)
 JIS B1454 CC Type (UNCW)

Type	M Material	S Surface Treatment	A Accessory
Single UNCA	1.7242/16CrMo4 Alloy Steel (Carburized)	Manganese Phosphate Coating	Strong Set Pin (Tolerance m6) 2 Pcs. Ring Spring 2 Pcs.
Double UNCW	1.7242/16CrMo4 Alloy Steel (Carburized)	Manganese Phosphate Coating	Strong Set Pin (Tolerance m6) 2 Pcs. Ring Spring 2 Pcs.

- Rubber Covers
 M Material: NBR
 A Accessories: Ring Spring 2 Pcs.
 Operating Temperature -20°C~100°C

Universal Joints

Part Number	Type	d	D	Single		Double		ℓ	C	E	P	€ Unit Price	
				L	LD	A	UNCA					UNCW	
UNCA (Single Type)	6	12	31	-	-	15.5	9	4.5	3				
	8	15	36	-	-	18	10	5	3.5				
	10	20	42	67.5	25.5	21	12	6	4.5				
	12	23	52	83	31	26	15	7.5	5				
	14	26	59	94.5	35.5	29.5	17	8.5	5.8				
	16	30	74	117.5	43.5	37	22	11	6.5				
UNCW (Double Type)	18	33	81	-	-	40.5	23.5	11.75	7				
	20	36	87	139	52	43.5	25	12.5	8				
	25	44	105	-	-	52.5	30	15	10				
	30	51	122	-	-	61	35	17.5	11.5				

Rubber Covers

Part Number	Type	d	KC	€ Unit Price
CSC (Single Type)	8	25		
	10	32		
	12	35		
	14	40		
	16	46		
	18	52		
	20	58		
	25	68		
	30	82		

* No rubber cover available for d=6.

Part Number	Type	UNCA, UNCW common				UNCA				UNCW			
		d	Allowable Condition Variable	Allowable Rotational Speed (r/min)	Allowable Operating Angle (°)	Static Tensile Failure Load (N)	Allowable Torque (Nm)	Static Failure Torque (Nm)	GD ² (Kg-cm ²)	Mass (g)	Allowable Torque (Nm)	Static Failure Torque (Nm)	GD ² (Kg-cm ²)
UNCA (Single Type)	6	28000	1800	30	5300	5.3	16	0.015	15	-	-	-	-
	8	42000	1500		7840	11.6	35	0.044	30	-	-	-	-
	10	70000	1300		13000	27.4	83	0.13	55	20.1	61	0.21	95
	12	106000	1100		23000	46	140	0.35	110	33	100	0.55	180
	14	133000	1000		26000	66	200	0.67	155	46	140	1	250
	16	175000	900		39000	102	310	1.5	260	76	230	2.3	410
UNCW (Double Type)	18	203000	800	44000	132	400	2.3	345	-	-	-	-	
	20	239000	700	52000	175	530	3.6	465	129	390	5.7	690	
	25	356000	600	81000	330	1000	9.7	790	-	-	-	-	
	30	465000	550	100000	495	1500	20	1160	-	-	-	-	

Order Example
 Part Number
UNCA16
CSC16

Days to Ship
8 Days
 Express A
 2,00 EUR/ piece
 P.88
 A Express Charge of 5,40 EUR for 3 or more identical pieces.

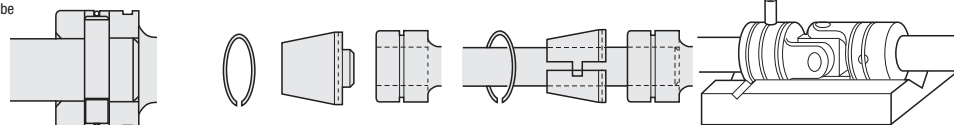
Price
 Volume Discount (Round down to one Cent.) P.87

5-9	1-9	10-19
Rate	€ Unit Price	5%

 For orders larger than indicated quantity, please request a quotation.

- High Strength Dowel Pins**
 (1)Material 1.7242/16CrMo4 Alloy Steel is carburized and ground to an m6 tolerance.
 (2)Effective section is shouldered as shown and tightly engaged only on one side.
 (3)Small misalignment is allowed on the mating side hole, but should be finished to an H8 tolerance.

- How to Handle Ring Spring**
 (1)Spring may lose its tension if once removed spring is reused.
 (2)A jig as show would assist the assembly procedure.
 (3)Do not leave the spring on the O.D. section for extended time periods or strike with a hammer and the like.

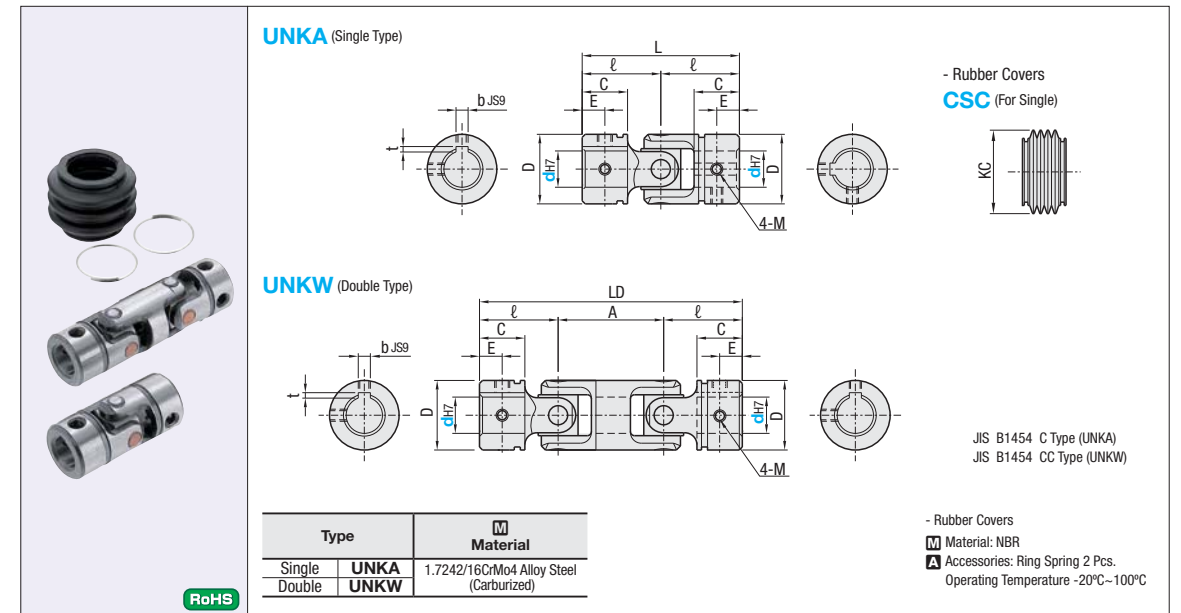


Universal Joints

-Keyway · Tapped Type-

CAD Data

Features: Shaft does not require pin hole machining, and keyway alone can tighten it.



UNKA (Single Type)
UNKW (Double Type)

- Rubber Covers
CSC (For Single)

JIS B1454 C Type (UNKA)
 JIS B1454 CC Type (UNKW)

Type	M Material
Single UNKA	1.7242/16CrMo4 Alloy Steel (Carburized)
Double UNKW	1.7242/16CrMo4 Alloy Steel (Carburized)

- Rubber Covers
 M Material: NBR
 A Accessories: Ring Spring 2 Pcs.
 Operating Temperature -20°C~100°C

Universal Joints

Part Number	Type	d	D	Single		Double		ℓ	C	E	b	t	M (Coarse)	€ Unit Price	
				L	LD	A	UNKA							UNKW	
UNKA (Single Type)	10	19	42	67.5	25.5	21	12	6	3	1.4	M5				
	12	23	52	83	31	26	15	7.5	4	1.8	M5				
	14	26	59	94.5	35.5	29.5	17	8.5	5	2.3	M6				
UNKW (Double Type)	16	30	74	117.5	43.5	37	22	11	5	2.3	M6				
	20	36	87	139	52	43.5	25	12.5	6	2.8	M6				

Part Number	Type	d	UNKA, UNKW common				UNKA				UNKW			
			Allowable Condition Variable	Allowable Rotational Speed (r/min)	Allowable Operating Angle (°)	Static Tensile Failure Load (N)	Allowable Torque (Nm)	Static Failure Torque (Nm)	GD ² (Kg-cm ²)	Mass (g)	Allowable Torque (Nm)	Static Failure Torque (Nm)	GD ² (Kg-cm ²)	Mass (g)
UNKA (Single Type)	10	80000	2000	30	13000	27.4	83	0.13	55	20.1	61	0.21	95	
	12	121000	1800		23000	46	140	0.35	110	33	100	0.55	180	
	14	151000	1600		26000	66	200	0.67	155	46	140	1	250	
UNKW (Double Type)	16	200000	1400	39000	102	310	1.5	260	76	230	2.3	410		
	20	273000	1000	52000	175	530	3.6	465	129	390	5.7	690		

Rubber Covers

Part Number	Type	d	KC	€ Unit Price
CSC (Single Type)	10	32		
	12	35		
	14	40		
	16	46		
	20	58		

Selecting Method

(1) Conditional Variables (Formula)

$$\text{Calculation Condition Variable} = \text{Rotational Speed (r/min)} \times \text{Angle (°)} \times \text{Torque (Nm)}$$

Calculation Condition Variable < Allowable Condition Variable

(2) Rotational Speed (r/min)

Rotational Speed x Angle Factor < Allowable Speed
 = Angle Factor Table =

Angle	5° or less	10°	15°	20°	25°	30°
Angle Coefficient	1.00	1.05	1.18	1.43	1.82	2.50

Order Example
 Part Number
UNKA16
CSC12

Days to Ship
8 Days
 Express A
 2,00 EUR/ piece
 P.88
 A Express Charge of 5,40 EUR for 3 or more identical pieces.

Price
 Volume Discount (Round down to one Cent.) P.87

5-9	1-9	10-19
Rate	€ Unit Price	5%

 For orders larger than indicated quantity, please request a quotation.

Compact AC Geared Motors -Guide-

Motor Selection

- Determination of the Driving Facility**
Specify the driving facility and overall dimensions, then check required conditions for the driving facility, such as the mass and travel speed of the material to be carried.
- Calculations for rotational speed and loads**
Calculate the load torque, loading moment of inertia and rotational speed of the motor driving shaft.
- Confirmation of Required Specifications**
Evaluate the required specifications, position accuracies, position holding, speed ranges, operating environment, and environmental resistance, etc.
- Motor Model Selection**
Select the models most suitable for the specification requirements.
- Interim Selection of Motor and Gear Head**
Select motor and gearhead candidates based on calculated speeds, load torque, and inertia values.
- Confirming the Selected Motor**
Finalize the selection by confirming all the specifications of the motor and the gearhead adequately satisfy the requirements.

Model Selection Table

Type	Induction Motor	Reversible Motor	Variable Speed Motor Unit	Motor with Electromagnetic Brake (1-Phase)	Motor with Electromagnetic Brake (3-Phase)
	P999		P1001	P1005	
Features	Motor suitable for continuous one direction operation	Motor capable of instantaneous rotation reversals	Motor combined with a speed controller, capable of infinitely variable speeds	Motor integrated with a power-OFF electromagnetic brake, capable of braking and position holding.	
Voltage	Single phase 100V · 200V Three phase 200V · 220V	Single phase 100V · 200V	Single phase 100V · 200V	Single phase 100V · 200V	Three phase 200V · 220V
Continuous Operation	Good	x	Good	x	Good
Instantaneous Direction Reversal Operation	x	Good	x	Good	x
Variable Speed	x	x	Good	x	x
Load Holding	x	x	x	Good	Good

Selection Example of Motors

- Required specifications
Applications: Conveyor, Operation Condition: Continuous, Voltage: 100VAC, Frequency: 60Hz, Rotational Speed: 25r/min

(1) Motor model selection

A single phase induction motor with leads (PACMS) is selected from the type chart above based on purpose, operational condition and environment, and available voltage.

(2) Interim selection of reduction ratio

Based on the target rotational speed of 25r/min, a reduction ratio 60 is selected to obtain 1500~1550r/min (induction motor rated speed in 60Hz region) divided by 25r/min=60.

(3) Calculating required torque

Approximated load is measured with a spring scale, etc. (e.g. 2.65Nm for instance)
By referring to the data for 60:1 ratio gearhead in "Allowable torque for gearheads" on **P.1000**, a 25W motor (PMCMS80-W25-V100) and a 60:1 ratio gearhead (PMCMGX80-60) with a 200% margin.

(4) Verifying the motor by actual measurement

Usually when the conveyor starts moving the largest torque is required. Therefore, points below are to be verified by measuring (*) the minimum starting voltage.

- Motor Starting Torque > Required Torque (=Minimum Starting Torque)
- Actual Measurement Rotational Speed > Rated Rotational Speed

(For example, it is assumed that the actual measurement result of minimum starting voltage is 75V with rotational speed were 1700r/min)

a. About Torque

Starting torque of PACMS80-W25-V100 is 0.16Nm from **P.1000**.

Min. starting torque=Starting torque x (Min. starting voltage/Rated voltage)²=0.16 x (75/100)²=0.09Nm

Starting torque of PACMS80-W25-V100 (0.16Nm) > Min. starting torque (0.09Nm)

b. About Rotational Speed

Rated rotational speed of PACMS80-W25-V100 is 1550r/min from **P.1000**.

Actually Measured Rotational Speed (1700r/min) > Rated Rotational Speed (1550r/min)

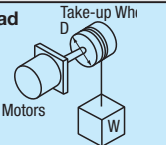
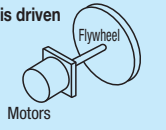
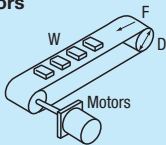
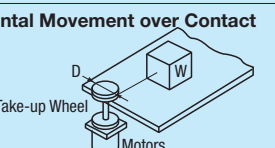
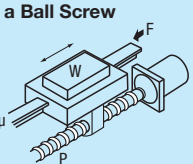
From the above, the PACMS80-W25-V100 motor is adequate for the case.

* Measurement method for min. starting voltage

Connect the motor with the load, and connect a variable AC transformer with a voltmeter.

Apply and raise the voltage slowly using a variable AC transformer, and measure the voltage when the equipment starts moving.

Calculation Formula of Load Torque

	SI Units	Gravitational Metric Units
When lifting a load 	$T = \frac{1}{2} D \cdot W$ [N·m] D : Drum Diameter [m] W : Load [N]	$T = \frac{1}{2} D \cdot W$ [kgf·m] D : Drum Diameter [m] W : Load [N]
When inertial object is driven 	$T = \frac{J}{9.55 \times 10^4} \cdot \frac{N}{t}$ [N·m] N : Rotational Speed [r/min] J : Inertia [kg·cm ²] t : Time [sec.]	$T = \frac{GD^2}{375 \times 10^4} \cdot \frac{N}{t}$ [kgf·m] N : Rotational Speed [r/min] GD ² : Flywheel Effect [kgf·cm ²] t : Time [sec.]
For Belt Conveyors 	$T = \frac{1}{2} D (F + \mu W)$ [N·m] D : Roller Diameter [m] W : Load Mass [kg] g : Gravitational Acceleration [m/s ²] μ : Friction Coefficient F : External Force [N]	$T = \frac{1}{2} D (F + \mu W)$ [kgf·m] D : Roller Diameter [m] W : Load Weight [kgf] μ : Friction Coefficient F : External Force [kgf]
For Horizontal Movement over Contact Surface 	$T = \frac{1}{2} D \cdot \mu W$ [N·m] D : Drum Diameter [m] W : Mass [kg] μ : Friction Coefficient g : Gravitational Acceleration [m/s ²]	$T = \frac{1}{2} D \cdot \mu W$ [kgf·m] D : Drum Diameter [m] W : Weight [kgf] μ : Friction Coefficient
When Driving a Ball Screw 	$T = \frac{1}{2\pi} P (F + \mu W)$ [N·m] F : External Force [N] W : Work Mass [kg] μ : Friction Coefficient of Sliding Surface [approx. 0.05~0.2] g : Gravitational Acceleration [m/s ²] P : Ball Screw Lead [m]	$T = \frac{1}{2\pi} P (F + \mu W)$ [kgf·m] F : External Force [N] W : Load Weight [kgf] μ : Friction Coefficient of Sliding Surface [approx. 0.05~0.2] P : Ball Screw Lead [m]

Allowable Moment of Inertia at Gear Head Output Shaft and Motor Shaft

When a large inertial load is linked to the gear head, a large torque is instantaneously generated when a frequent, intermittent motion starts. When this shock load is too large, the gear head and motor may be damaged.
To select motors, convert inertia of load (JG) applied to gear head output shaft to motor shaft inertia (JM), to be within the values listed below. The inertia varies depending on the type of load. Refer to our website for the inertia of load applied to the gear head output shaft.

- Finding Moment of Inertia Applied to Motor Shaft

$$JM = JG \cdot \frac{1}{i^2}$$

JG : Gearhead output shaft inertia [kg·cm²]

JM : Motor shaft inertia [kg·cm²]

i : Reduction ratio [e.g. i=5 if 1:5]

Part Number	Type	Output (W)	Allowable Moment of Inertia at Motor Shaft			
			Except Electromagnetic Brake Motor		Motors with Electromagnetic Brake	
			Jm (kg·cm ²)	GD ² M (kgf·cm ²)	Jm (kg·cm ²)	GD ² M (kgf·cm ²)
60	6	0.125	0.50	0.08	0.32	
70	15	0.125	0.50	0.158	0.63	
80	25	0.138	0.55	0.178	0.71	
90	40	0.400	1.60	0.735	2.94	
90	60	0.650	2.60	0.875	3.50	
	90	0.650	2.60	1.000	4.00	

* The allowable load inertia for the 3-phase motors are for static reversal operation.

*Inertia moments are expressed with J or GD². The J is generally called "inertia" and is equal to physical inertia moments used in SI Units, expressed with the unit kg·m². On the other hand, the unit "GD" (gee-dee-square) is typically used in industrial calculations using conventional gravitational units, and is also called a "Flywheel Effects". The units used to express are [kgf·m²] and/or [kgf·cm²], and the relationship between "J" and "GD²" is: J=GD²/4. The unit for "J" should primarily be expressed with [kg·m²] from the physics standpoint, but [kg·cm²] will be used here in order to simplify the calculation steps.

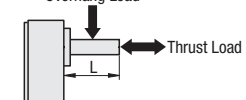
Service Factor

Generally load is fluctuant. When thinking of service life in such a case, use coefficient called Service Factor according to type of load. Select Service Factor from the following table, and multiply necessary power to calculate design power.

Load Type	Example of Load	Service Factor		
		5 hours/day	8 hours/day	24 hours/day
Constant Load	Belt Conveyor, Continuous One-way Operation	0.8	1.0	1.5
Light Impacts	Start, Stop, Cam Drive	1.2	1.5	2.0
Moderate Impacts	Instantaneous Direction Reversal, Instantaneous Stop	1.5	2.0	2.5
Heavy Impact	Frequently Occurring Impacts	2.5	3.0	3.5

Refer to our website for technical data on temperature increase of motor.

Overhang Load



* Applied at L/2 of output shaft

Allowable Overhanging Load and Allowable Thrust Load on Gear Heads

An overhanging load applied perpendicular to the gearhead output shaft is generated when the gearhead output shaft is linked to the other machine with a chain or belt, but not when it is directly coupled with couplings.

Overhanging loads and thrust loads on output shafts greatly affect the bearing life.

Ensure that applied loads do not exceed the allowed values shown below.

Part Number	Allowable Overhanging Load* N (kgf)	Allowable Thrust Load N (kgf)
Type	A	
	60	98 (10)
	70	196 (20)
	80	294 (30)
(For Motor Output 40W or Less)	80	49 (5)
	90	392 (40)
(For Motor Output 60W or More)	90	588 (60)
		147 (15)

Compact Geared Motors

-Variable Speed Motor Units-

Features: Motor speed can be steplessly varied by a speed controller. Suitable when the motor speed must be adjustable. For detailed specifications, see **P.1003**. Refer to **P.1007** for motor brackets. Ⓢ Rated service life 10,000 hours (When used for 8hrs./day at a constant load such as belt conveyor)

CAD Data



Unit Configuration

- Variable Speed Motor
- Speed Controller
- Capacitor
- Motor Extension Cable (1m)

(Integrated in the speed controller for 40W or less.)

RoHS

Gear Head

(For Motor Output 40W or Less)
(For Motor Output 60W or More)

Variable Speed Motors

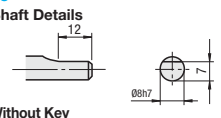
A Accessory

Gear Head	Key (Not for A60)
	Screws, Nuts, Washers (4 each)

A60

Shaft Details

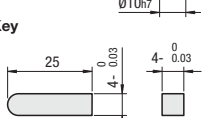
Without Key



A70, 80

Shaft Details

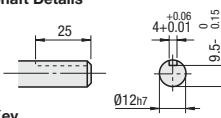
Key



A90(40W)

Shaft Details

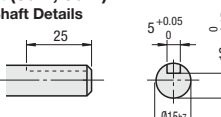
Key



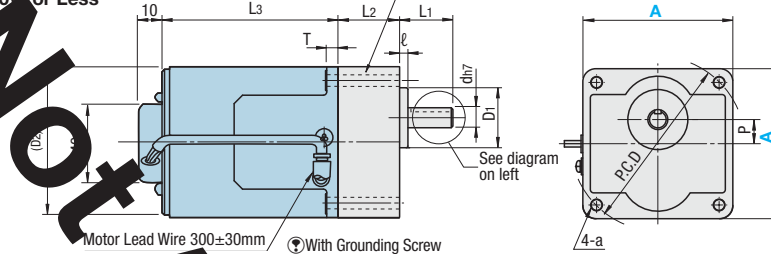
A90(60W, 90W)

Shaft Details

Key

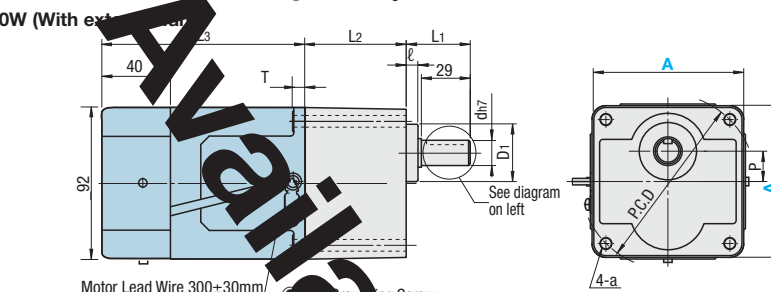


- 40W or Less



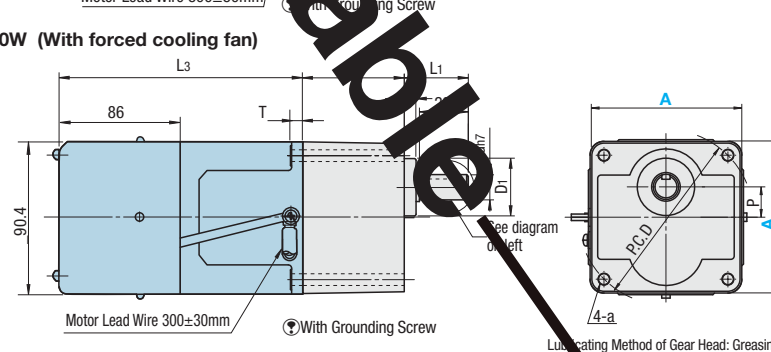
Motor Lead Wire 300±30mm
With Grounding Screw

- 60W (With external cooling fan)



Motor Lead Wire 300±30mm
With Grounding Screw

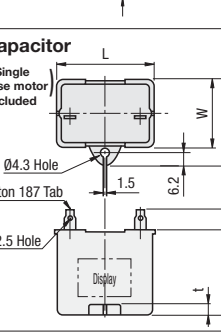
- 90W (With forced cooling fan)



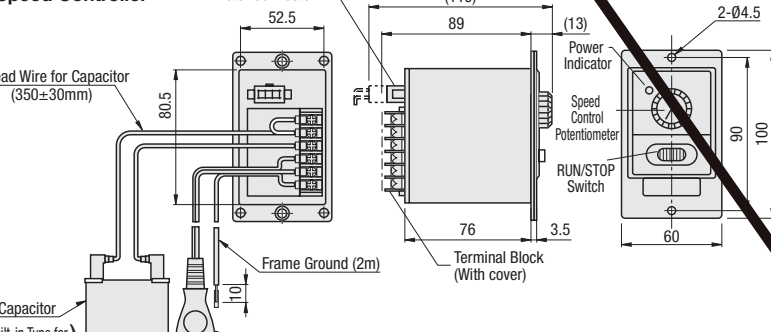
Motor Lead Wire 300±30mm
With Grounding Screw

Capacitor

Single (phase motor) Included



Speed Controller



Motor Connector 52.5
Lead Wire for Capacitor (350±30mm)
Power Cord (2m) (Plug is not attached to 200V type)

Variable Speed Motor Unit

Part Number Type	Output (W) A	Voltage (V)	d	D1	L1	L2*	L3	ℓ	T	(D2)	P	a	P.C.D	Mass (kg)*		€ Unit Price
														Motors	Gear Head	
60	6	100	8	25	32	26 (33)	75	6	7	65	10	4.5	70	0.71	0.24 (0.3)	
		200												1.1	0.38 (0.45)	
70	15	100	10	30	32	30 (36)	80	5	7	74	15	5.5	82	1.1	0.38 (0.45)	
		200												1.5	0.6	
80	25	100	12	36	32	30	85	6	7	86	18	6.5	94	2.4	0.8	
		200												2.7	1.4	
90	60	100	15	34	38	60	150	7	7.5	-	-	-	104	3.5	1.4	
		200														

*The values in () are weight and dimensions for gearheads with reduction ratio 30 or higher.

Variable Speed Motor Unit Specifications Continuous Rating No. of Poles: 4P

Part Number Type	Output (W) A	Voltage (V)	50Hz		60Hz		Capacitor μF
			Allowable Torque Nm (kgf-cm) When 1200r/min	Starting Current (A)	Allowable Torque Nm (kgf-cm) When 1200r/min	Starting Current (A)	
60	6	100	0.032 (0.32)	0.3	0.032 (0.32)	0.025 (0.25)	2.5 (200V)
		200	0.089 (0.90)	0.6	0.089 (0.90)	0.029 (0.29)	5 (200V)
70	15	100	0.089 (0.90)	0.3	0.089 (0.90)	0.029 (0.29)	1.3 (400V)
		200	0.14 (1.4)	0.5	0.14 (1.4)	0.039 (0.39)	8 (200V)
80	25	100	0.14 (1.4)	0.5	0.14 (1.4)	0.039 (0.39)	2 (400V)
		200	0.30 (3.0)	1.0	0.24 (2.4)	0.049 (0.5)	12 (200V)
90	60	100	0.43 (4.3)	1.2	0.36 (3.6)	0.078 (0.79)	3 (400V)
		200	0.59 (6.0)	2.3	0.54 (5.5)	0.25 (2.5)	20 (200V)

Capacitor (Included)

A	Output (W)	Voltage (V)	L	W	D	H
90	60	100	50.2	26.7	37	36
		200	50	30.5	41	41.5
	90	100	50.2	31	41	42
		200	50	30.5	41	41.5

Ⓢ Included with 60/90W motors only (Integrated with the speed controllers for 40W or less)

Ⓢ Allowable Torque for Gear Head Mounted (For Variable Speed Motor Unit, available torques are reduced depending on the rotational speed of the motor. For details, see **P.1003**)
Ⓢ Output shaft rotation direction is same as the motor for [] cells, others are reverse rotation.

Part Number Type	Output (W) A	Rotational Speed (r/min)	Reduction Ratio	Allowable Torque Nm																				
				3	3.6	5	6	7.5	9	10	12	15	20	25	30	36	50	60	75	90	100	120	150	180
60	6	1200	50Hz	0.077	0.093	0.13	0.15	0.19	0.23	0.25	0.32	0.36	0.46	0.50	0.64	0.69	0.83	1.16	1.39	1.74	2.09	2.33	2.45	2.45
		90	50/60Hz	0.06	0.07	0.10	0.12	0.15	0.18	0.20	0.25	0.30	0.36	0.46	0.50	0.54	0.65	0.90	1.08	1.35	1.62	1.81	2.17	2.45
70	15	1200	50Hz	0.21	0.25	0.36	0.43	0.54	0.64	0.72	0.86	1.08	1.21	1.41	1.58	1.92	2.3	3.20	3.84	4.80	4.90	4.90	4.90	4.90
		90	50/60Hz	0.070	0.084	0.11	0.14	0.17	0.21	0.23	0.28	0.35	0.42	0.50	0.58	0.73	0.75	1.05	1.26	1.58	1.89	2.11	2.53	3.16
80	25	1200	50Hz	0.34	0.4	0.56	0.68	0.85	1.02	1.13	1.41	1.7	2.04	2.28	2.83	3.06	3.8	5.1	6.12	7.65	7.84	7.84	7.84	7.84
		90	50/60Hz	0.094	0.11	0.15	0.18	0.23	0.28	0.31	0.39	0.47	0.56	0.63	0.78	0.91	1.01	1.41	1.69	2.12	2.54	2.83	3.39	4.24
90	40	1200	50Hz	0.72	0.87	1.21	1.45	1.82	2.18	2.43	3.03	3.64	4.37	4.86	6.03	6.54	8.00	9.80	9.80	9.80	9.80	9.80	9.80	9.80
		90	50/60Hz	0.11	0.14	0.19	0.23	0.29	0.35	0.39	0.49	0.59	0.71	0.79	0.99	1.11	1.28	1.78	2.13	2.67	3.20	3.56	4.27	5.34
90	60	1200	50Hz	0.98	1.17	1.57	1.87	2.35	2.80	3.14	3.92	4.70	5.60	6.27	7.55	8.00	10.00	12.00	13.70	15.20	18.00	19.60	19.60	19.60
		90	50/60Hz	0.18	0.22	0.31	0.37	0.47	0.56	0.63	0.70	0.84	1.00	1.12	1.40	1.68	1.81	2.60	3.00	3.75	4.50	5.00	6.00	7.50
90	90	1200	50Hz	1.43	1.71	2.38	2.86	3.57	4.29	4.77	5.36	6.43	7.72	8.58	10.97	12.80	13.70	19.60	19.60	19.60	19.60	19.60	19.60	19.60
		90	50/60Hz	0.60	0.72	1.01	1.21	1.51	1.81	2.02	2.26	2.71	3.25	3.62	4.52	5.43	5.83	8.10	9.72	12.10	14.50	16.20	19.40	19.60

Gear Head (For motor output of 40W or lower)

Part Number Type	A	Reduction Ratio Selectable	€ Unit Price		
			3-18	20-36	50-180
60		3 3.6 5 6 7.5 9 10			
70		12.5 15 18 20 25			
80		30 36 50 60 75 90			
90		100 120 150 180			

Gear Head (For motor output of 60W or Higher)

Part Number Type	A	Reduction Ratio Selectable	€ Unit Price				
			3-9	10-18	20-60	75-180	
90		3 3.6 5 6 7.5 9 10					
		12.5 15 18 20 25					
90		30 36 50 60 75 90					
		100 120 150 180					

Order Example: - Variable Speed Motor Units - Gearhead
Part Number - Output (W) - Voltage (V) Part Number - Reduction Ratio
- W25 - V100 - 50

Days to Ship: 8 Days

Express A: 3.00 EUR/ piece


Ⓢ Express Charge of 10.00 EUR for 3 or more identical pieces

Alterations

Part Number - Output (W) - Output (W) - (MTC)
- W25 - V100 - MTC3

Motor Extension Cable

RoHS



Alteration Code	Length (m)	Price / Order
	2	8,00
	3	9,50
	5	11,50

Ⓢ Please read the included manual for transportation, installation, assembly, wiring, operating, and maintenances of motors.

Ⓢ How to Mount **P.1004**

Compact Geared Motors

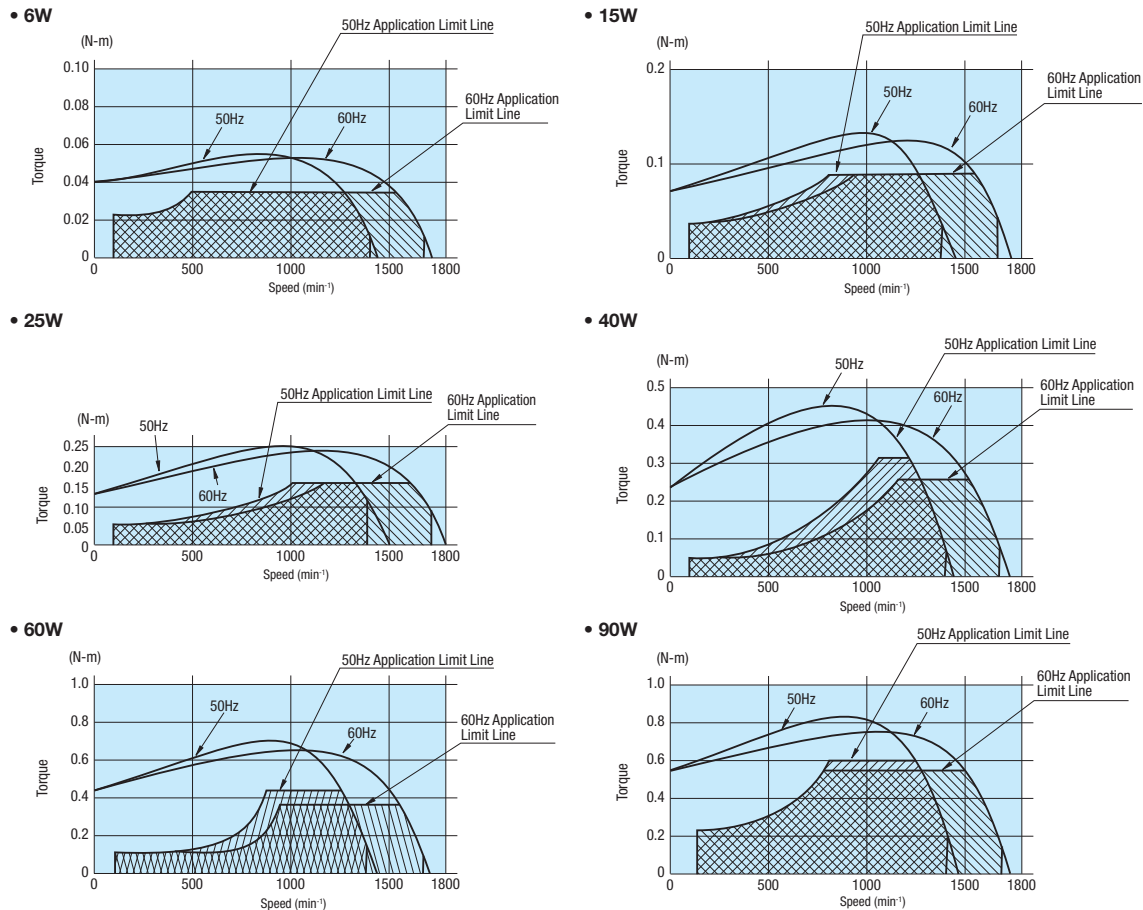
-Variable Speed Motors Overview - Specifications-

Overview

Output	6W, 15W, 25W, 40W, 60W, 90W
Rated Voltage	100V, 200V
Operating Voltage Range	±10% (Relative to rated voltage)*
Power Supply Frequency	50Hz/60Hz
Speed Control Range	90~1400min-1 (50Hz) 90~1700min-1 (60Hz)
Speed Fluctuation Rate	5% (Standard Value)
Speed Setting	To be set with a control potentiometer (Analog Setting)
Operating Temp. Range	-10°C~40°C
Storage Temperature Range	-20°C~60°C
Operating Humidity Range	85%RH or less (no condensation)

* The voltage ±10% is a range of power fluctuations, and not applicable for continuous usage.

Speed Torque Curves (Operating Range)



* About "Operational Limit Line"

Indicates the operational limits for Variable Speed Motor Unit. Use Variable Speed Motor Unit within the shaded areas. If the motor is used beyond the operational limits (unshaded area), temperature may rise causing motor burn-outs. In addition, the gears may break in gearheads.

Transmission efficiency of gearheads

Type	Reduction Ratio																					
	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
	81%											75%										
	81%						75%						70%									

About Allowable Shaft Torque of Gear Head

For Variable Speed Motor Unit, the available torque is restricted, depending on the rotational speed of the motor. (Shaded area of speed torque curves on the left page)
With the following formula, calculate allowable torque of Gear Head when Variable Speed Motor Unit is used, and use within the calculated torque.

$$TP = TM \times i \times \eta$$

TP : Allowable shaft torque of gear head to be obtained
 TM : Operation limit of speed vs. torque for Variable Speed Motor Unit
 i : Reduction ratio of gear head
 η : Transmission efficiency of gearheads (Left Page)

However, the maximum torque is limited to each gearhead's prescribed maximum, ("Allowable Torque for Gear Head Mounted" P.102) and the actual use must be kept below such given maximum values. P.100

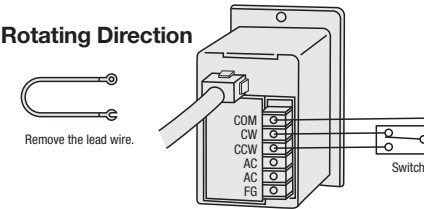
(Example 1) When using a 90W motor with 50:1 ratio at 500min⁻¹

The $TM=0.3Nm$ as can be observed from the Speed/Torque Graph on the left page, and the transmission efficiency of the gearhead $\eta=70%$ from the chart. Therefore, $TP=0.3 \times 50 \times 0.7=10.5Nm$

(Example 2) When using a 40W motor with 150:1 ratio at 1000min⁻¹ (60Hz)

$TM=0.16Nm$ and $\eta=75%$, so $TP=0.16 \times 150 \times 0.75=18Nm$, but the allowable max. torque for 150:1 ratio gearhead output shaft for 40W motor is 9.80Nm from the table on P.1002, so the load torque must be kept under 9.8Nm. P.1002

Changing Rotating Direction



Switch Specification	
- Single Pole Double Throw (SPDT) ON-OFF-ON	
- Power source 100V, 5A-200VAC or more	
- Power source 200V, 3A-400VAC or more	

From the view of the motor's output shaft	
Clockwise	Connect "COM" and "CW"
Counterclockwise	Connect "COM" and "CCW"

- Unidirectional operation

Rotation direction is changed by switching the jumper wire connected to the terminal block on the back of the controller. Connect the COM jumper to either CW or CCW.

⚠Caution

If the motor is combined with the gear head, the rotating direction of the gear head output shaft may be reverse of the motor shaft, depending on the reduction gear ratio.

- Forward/Reverse Operation

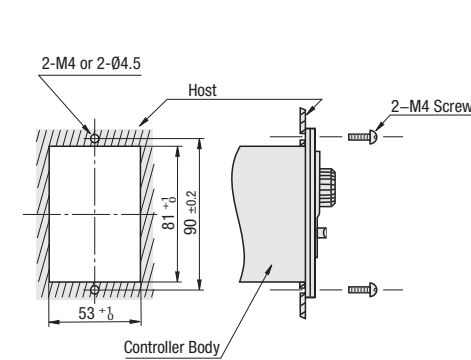
Bidirectional operation can be facilitated by adding a switch between CW and CCW terminals.

⚠Caution

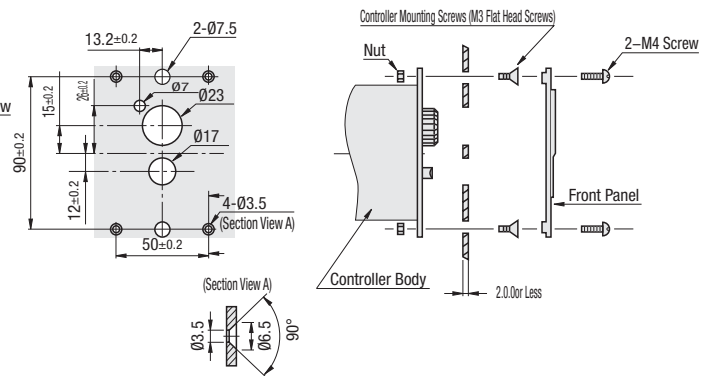
Switch the motor directions after the motor stops. Trouble may arise if switched while the motor is running.

Installation Method of Speed Controller

I. Installing on a square opening



II. Installing without a square opening



- (1) Cut a square opening on the install location.
- (2) Combine the controller and the front panel, and mount with M4 screws.

- (1) Drill holes on the board.
 - (2) Remove the front panel from the controller body.
 - (3) Mount the controller body with M3 flathead screws and nuts.
 - (4) Mount the front panel with M4 screws and nuts.
- ⚠The thickness of the board must be 2 mm or less.

Small Geared Motors / Small Geared Motor Mounting Plates (Alterations)

- Overview of Electromagnetic Brake Motors-

Features

- Power-OFF brake used will positively brake and hold the load even the power supply is turned OFF.
- The override amount for motor alone is 2-4 rotations.
- Simple switching enables up to 6 stops per minute. (Allow 3 seconds or more for each stopped state)
- The brake integrates a rectifier circuit and an AC power can be directly connected as with the motor.
- The life of brake is 1 million cycles at allowed inertia rating.

Response Characteristics

- Electromagnetic brake motors have response characteristics such as Rise Time, Stopping Time, and Override. All of these parameters are affected by the load inertia.
- Electromagnetic brake motor's response characteristics are affected by the following three points.
 - 1) Motor's average acceleration torque
 - 2) Average braking torque
 - 3) Load torque and inertia
- Careful evaluation is needed on the load inertia since it varies greatly depending on the mating system.

Characteristic Chart

Part Number	Type	Output (W)	Frequency	Response Characteristic (Motor Unit)			Average Acceleration Torque		Inertia of the Motor		Braking Torque		Allowable Load Inertia	
				Rise Time (sec)	Stopping Time (sec)	Override (Rotation)	(Nm)	(kgf-cm)	J (kg-cm ²)	GD (kgf-cm ²)	(Nm)	(kgf-cm)	J (kg-cm ²)	GD (kgf-cm ²)
60	6	6	50Hz	0.07	0.08	1.5	0.0637	0.65	0.201	0.805	0.049	0.5	0.080	0.32
			60Hz	0.09	0.09	1.6	0.0647	0.66						
70	15	15	50Hz	0.07	0.05	1.5	0.120	1.22	0.329	1.316	0.078	0.8	0.158	0.63
			60Hz	0.085	0.07	1.5	0.114	1.16						
80	25	25	50Hz	0.10	0.13	2.2	0.235	2.40	0.603	2.411	0.10	1.0	0.178	0.71
			60Hz	0.14	0.14	2.3	0.222	2.27						
90	40	40	50Hz	0.10	0.14	3	0.439	4.48	1.362	5.446	0.20	2.0	0.735	2.94
			60Hz	0.15	0.15	3.5	0.420	4.29						
			50Hz	0.11	0.11	2.5	0.639	6.52	1.862	7.447	0.39	4.0	0.875	3.5
			60Hz	0.12	0.12	2.9	0.615	6.28						
80	25	25	50Hz	0.13	0.13	2.8	0.859	8.77	2.353	9.413	0.39	4.0	1	4
			60Hz	0.17	0.17	3.2	0.804	8.20						
			50Hz	0.09	0.10	2.2	0.388	3.96	0.603	2.411	0.10	1.0	0.178	0.71
			60Hz	0.12	0.12	2.3	0.306	3.12						
90	40	40	50Hz	0.05	0.15	3.5	0.667	6.81	1.362	5.446	0.20	2.0	0.735	2.94
			60Hz	0.06	0.15	4	0.513	5.23						
			50Hz	0.06	0.15	3	1.031	10.52	1.862	7.447	0.39	4.0	0.875	3.5
			60Hz	0.065	0.15	3.4	0.767	7.83						
90	90	90	50Hz	0.06	0.14	3.3	1.429	14.58	2.286	9.143	0.39	4.0	1	4
			60Hz	0.065	0.15	3.5	1.065	10.87						

Calculation for Rise Time

<SI Units>
 $T_s = \frac{Jm + J_L}{9.55 \times 10^4} \times \frac{n}{T_a - T_L}$
 Ts : Rise Time (sec)
 Ta : Average Acceleration Torque (Nm)
 Tl : Load Torque (Nm)
 Jm : Motor Inertia (kg-cm²)
 JL : Load Inertia (kg-cm²)
 n : Motor Rotational Speed (r/min)

<Gravitational Metric Units>
 $T_s = \frac{GD^2 M + GD^2 L}{37500} \times \frac{n}{T_a - T_L}$
 Ts : Rise Time (sec)
 Ta : Average Acceleration Torque (kgf-cm)
 Tl : Load Torque (kgf-cm)
 GD² M : Rotor GD2 (kgf-cm²)
 GD² L : Load GD2 (kgf-cm²)
 n : Motor Rotational Speed (r/min)

Calculations for Stopping Time

<SI Units>
 $T_{b1} = \frac{Jm + J_L}{9.55 \times 10^4} \times \frac{n}{T_b}$
 Tb1 : Braking Time (sec)
 Tb : Braking Torque (Nm)

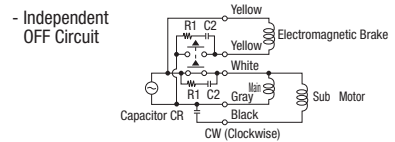
<Gravitational Metric Units>
 $T_{b1} = \frac{GD^2 M + GD^2 L}{37500} \times \frac{n}{T_b}$
 Tb1 : Braking Time (sec)
 Tb : Braking Torque (kgf-cm)

Time to stop and "Override"

"Override" is the number of free shaft rotations after a STOP signal is given, and calculated from the equation below considering the response time constant of the brake armature.
 $nbB = a + \frac{1}{120} \times Tb1$
 nbB : Override (rotations) for a Motor with Electromagnetic Brake
 a : Delay Time Constant
 n : Motor Rotations
 Tb1 : Braking time

Independent OFF and Common OFF circuits

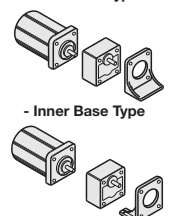
Electromagnetic brake motor's stopping time constant will vary depending on where the switch is placed within the circuit. With the Common OFF circuit, the motor coil and the brake coil form a closed loop circuit, and the residual energy from the motor will affect the brake coil time constant. As a result, the brake armature release is delayed and the motor will require more time to stop. For applications requiring stopping performance, use the Independent OFF circuit.



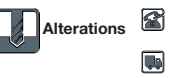
Alteration Compact Geared Motor Brackets



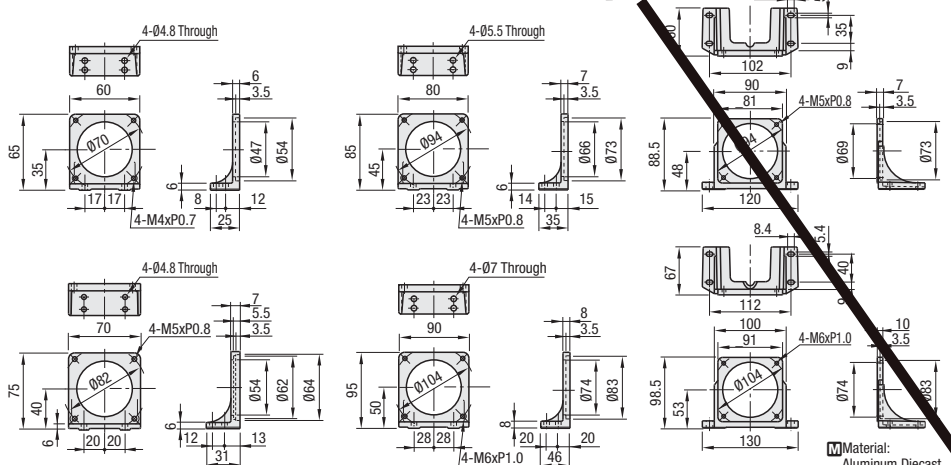
Example of Installation - Outer Base Type



Inner Base Type



Outer Base Type



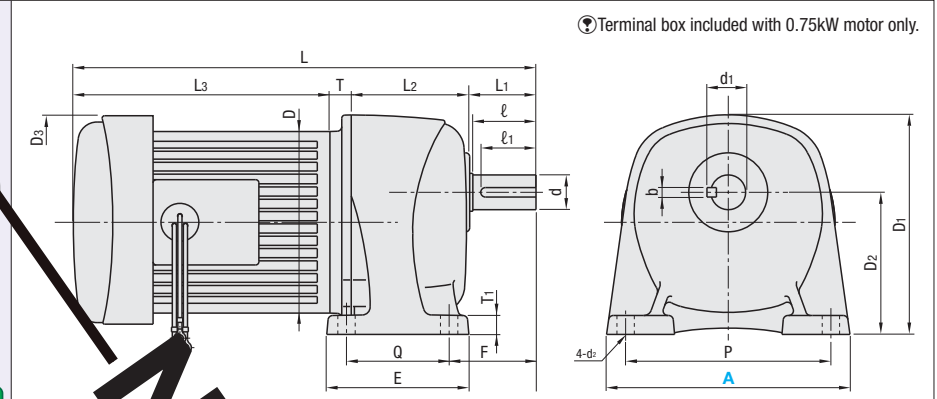
Inner Base Type



Medium Geared Motors

CAD Data

Features: Long life and low noise with a helical gear design. Maintenance free and mounting orientation free.



Part Number	Output (kW)	Reduction Ratio	Voltage (V)	50Hz				60Hz				€ Unit Price 1-3 pcs.
				Current (A)	Rotational Speed (rpm)	Torque (kgf-m)	Output Shaft Rotational Speed (rpm)	Current (A)	Rotational Speed (rpm)	Torque (kgf-m)	Output Shaft Rotational Speed (rpm)	
18	0.1	10/1	Three phase 200	0.61	1420	10.62	150	0.54	1700	5 (0.51)	180	
		15/1		0.61	1420	11 (0.93)	100	0.54	1700	7.5 (0.77)	120	
		20/1		0.61	1420	12 (1.2)	75	0.54	1700	9.8 (1)	90	
		40/1		0.61	1420	24 (2.4)	37.5	0.54	1700	19.6 (2)	45	
		50/1		0.61	1420	29 (3)	30	0.54	1700	24.5 (2.5)	36	
		5/1		1.1	1420	300	1.00	1710	5 (0.51)	360		
	0.2	10/1		1.1	1420	11 (1.2)	150	1.00	1710	9.8 (1)	180	
		15/1		1.1	1420	18.6 (1.8)	100	1.00	1710	14.7 (1.5)	120	
		20/1		1.1	1420	24.5 (2.4)	75	1.00	1710	20.6 (2.1)	90	
		40/1		0.61	1420	47 (4.8)	37.5	0.54	1700	39.2 (4)	22.5	
		50/1		0.61	1420	59 (6)	30	0.54	1700	49 (5)	18	
		30/1		1.1	1420	36.3 (3.7)	60	1.00	1710	30.4 (3.1)	60	
22	0.1	10/1	Three phase 200	0.61	1420	10.62	150	0.54	1710	5 (0.51)	180	
		15/1		0.61	1420	11 (1.2)	100	0.54	1710	7.5 (0.77)	120	
		20/1		0.61	1420	12 (1.2)	75	0.54	1710	9.8 (1)	90	
		40/1		0.61	1420	24 (2.4)	37.5	0.54	1700	19.6 (2)	45	
		50/1		0.61	1420	29 (3)	30	0.54	1700	24.5 (2.5)	36	
		5/1		1.1	1420	300	1.00	1710	5 (0.51)	360		
	0.2	10/1		1.1	1420	11 (1.2)	150	1.00	1710	9.8 (1)	180	
		15/1		1.1	1420	18.6 (1.8)	100	1.00	1710	14.7 (1.5)	120	
		20/1		1.1	1420	24.5 (2.4)	75	1.00	1710	20.6 (2.1)	90	
		40/1		0.61	1420	47 (4.8)	37.5	0.54	1700	39.2 (4)	22.5	
		50/1		0.61	1420	59 (6)	30	0.54	1700	49 (5)	18	
		30/1		1.1	1420	36.3 (3.7)	60	1.00	1710	30.4 (3.1)	60	
28	0.4	10/1	Three phase 200	1.1	1420	10.62	150	1.00	1710	5 (0.51)	180	
		15/1		1.1	1420	11 (1.2)	100	1.00	1710	7.5 (0.77)	120	
		20/1		1.1	1420	12 (1.2)	75	1.00	1710	9.8 (1)	90	
		40/1		0.61	1420	24 (2.4)	37.5	0.54	1700	19.6 (2)	45	
		50/1		0.61	1420	29 (3)	30	0.54	1700	24.5 (2.5)	36	
		5/1		2.1	1410	300	1.80	1690	5 (0.51)	360		
	0.2	10/1		2.1	1410	12 (1.2)	150	1.80	1690	9.8 (1)	180	
		15/1		2.1	1410	25 (2.5)	100	1.80	1690	14.7 (1.5)	120	
		20/1		2.1	1410	36 (3.7)	75	1.80	1690	20.6 (2.1)	90	
		40/1		1.1	1420	47 (4.8)	37.5	1.00	1710	39.2 (4)	22.5	
		50/1		1.1	1420	58.8 (6)	30	1.00	1710	49 (5)	18	
		30/1		2.1	1410	94.1 (9.6)	60	1.80	1690	78.4 (8)	22.5	
32	0.4	10/1	Three phase 200	1.1	1420	10.62	150	1.00	1710	5 (0.51)	180	
		15/1		1.1	1420	11 (1.2)	100	1.00	1710	7.5 (0.77)	120	
		20/1		1.1	1420	12 (1.2)	75	1.00	1710	9.8 (1)	90	
		40/1		0.61	1420	24 (2.4)	37.5	0.54	1700	19.6 (2)	45	
		50/1		0.61	1420	29 (3)	30	0.54	1700	24.5 (2.5)	36	
		5/1		2.1	1410	300	1.80	1690	5 (0.51)	360		
	0.75	10/1		2.1	1410	12 (1.2)	150	1.80	1690	9.8 (1)	180	
		15/1		2.1	1410	25 (2.5)	100	1.80	1690	14.7 (1.5)	120	
		20/1		2.1	1410	36 (3.7)	75	1.80	1690	20.6 (2.1)	90	
		40/1		1.1	1420	47 (4.8)	37.5	1.00	1710	39.2 (4)	22.5	
		50/1		1.1	1420	58.8 (6)	30	1.00	1710	49 (5)	18	
		30/1		2.1	1410	94.1 (9.6)	60	1.80	1690	78.4 (8)	22.5	

* Terminal box included with 0.75kW motor only. For orders larger than indicated quantity, please request a quotation.

Part Number	Output (kW)	D	D1	D2	D3	d	d1	d2	b	L	L1	L2	L3	l	l1	T	T1	E	F	Q	A	P	Mass (Kg)
18	0.1	115	131	85	-	18	20.5	9	6	221	32	58	116.5	30	27	14.5	10	64	45	40	134	110	6.0
	0.2	115	136	85	135	18				267	32	58	162.5	30	27	14.5	10	64	45	40	134	110	6.5
22	0.1	115	139	90	-	22	24.5	11	6	247	42	75	116.5	40	35	13.5	12	90	55	65	151	130	7.0
	0.2	115	139	90	135	22				293	42	75	162.5	40	35	13.5	12	90	55	65	151	130	7.5
28	0.4	128	141.5	90	141	22			8	314	42	75	180.5	40	35	16.5	12	90	55	65	154	130	9.5
	0.2	115	167	110	135	28				306	47	89	162.5	45	40	7.5	15	125	65	90	175	140	9.5
32	0.4	128	167	110	141	28	31	11	8	330	47	89	180.5	45	40	13.5	15	125	65	90	175	140	11.5
	0.75	160	167.5	110	162	28																	

Rollers & Conveyor Components

Rollers & Conveyor Components

Product Name Page	1012	1013	1015	1016			
1016	1017	1019	1020	1020	1021		
1022	1023	1024	1024	1025	1026	1027	
1028	1029	1029	1030	1031	1031	1032	
1032	1032	1033	1033	1034	1035	1036	
1037	1038	1039	1040	1040	1040	1041	1041
1041	1042	1042	1042	1042	1042		

1043 / 1044	1046	1047	1048	1048		
1049	1049	1050	1050	1051-1053	1051-1054	
1054	1056	1057	1058	1059	1059	
1059	1059	1059	1060	1060	1060	1061
1062	1062	1063				
1065	1066	1066	1067	1067		

TM Magnetic Transmission Drive (Parts for Non-contact Magnetic Force Transmission)

-Overview-



TM Magnetic Transmission Drive / TM Magnetic Transmission Drive Economy Type

CAD Data

Overview

Force is transmitted non-contact by the principal of attractive force of magnetism.

Features

- Particle generation can dramatically be reduced.
- Ultra quiet operation
- Can be used semi-permanently within the allowed range of use, due to its permanents.
- When extraordinary load is applied, two magnets turn separately and work as a torque limiter.
- No backlash.
- Possible to use in water.

Selection Steps

- (1) According to transmission direction, select orthogonal type or parallel type.
- (2) Calculate the required quantity from the size and the distance of the work to be carried.
- (3) Calculate the required torque from the weight and quantity of the work to be carried.
- (4) Select the matching product from the right page.

Force is transmitted by the principal of attractive force of magnetism.

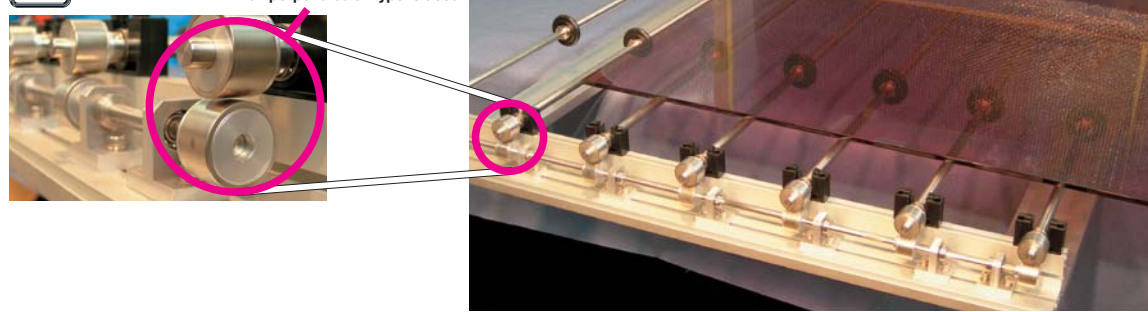


ex) Carrier line of flat panel displays

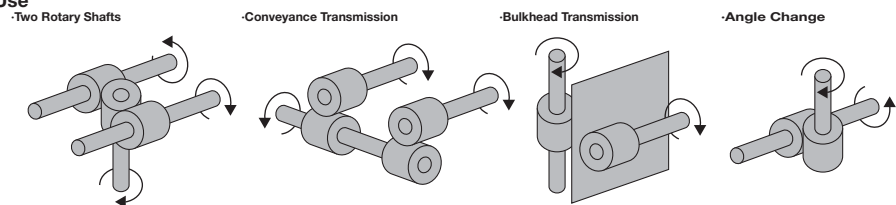


Example

When perpendicular type is used

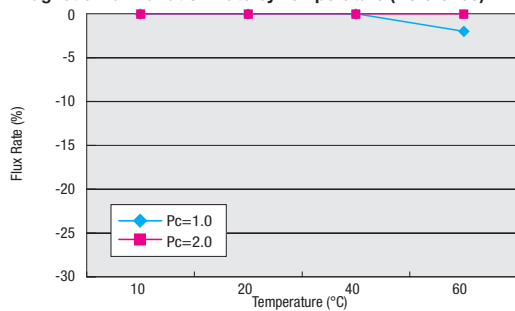


Example of Use

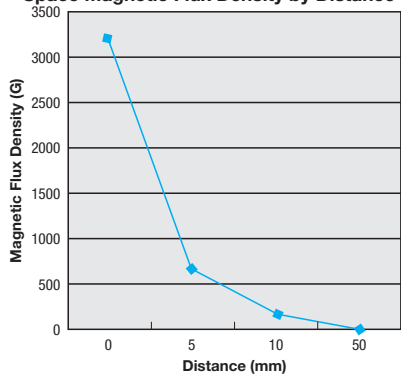


Design Data

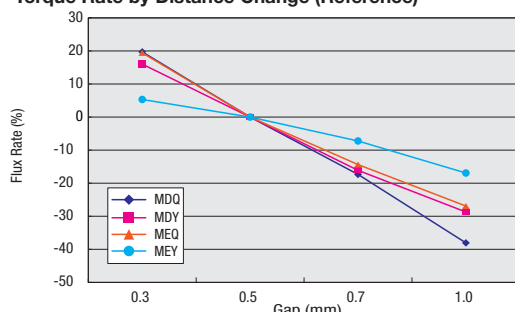
Magnetic Flux Variation Rate by Temperature (Reference)



Space Magnetic Flux Density by Distance



Torque Rate by Distance Change (Reference)



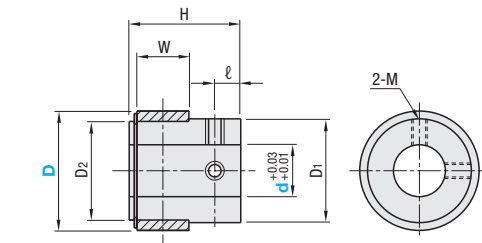
Cautions

- No alteration is available for the magnet parts.
- Strong impact may cause damage and lead to deterioration in magnetic force.
- The following objects are negatively affected by strong magnetic field.
 - Electric devices such as cell-phones, PCs and watches.
 - Medical electronics such as pacemakers, etc.
- For its non-contact nature, not suitable for extremely high-speed rotation. (Maximum rotational speed 1500rpm)

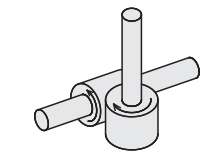
Features: Usable in vacuum

Standard Type

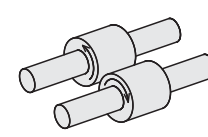
Type	Combined Type	Material	Surface Treatment
MDQ	Perpendicular Type	EN AW-5056/AlMg5	Out-gassing Prevention Treatment
MDY	Parallel Type		



Perpendicular Type
Force is transmitted with TM Magnets arranged at 90°.



Parallel Type
Force is transmitted with TM Magnets arranged in parallel.



Operation Temperature: 0 ~ 60°C

Part Number	Type	d Selection	D1	D2	H	W	l	M	*Allowable Torque (Nm)		€ Unit Price		
									MDQ	MDY			
Perpendicular Type MDQ		16	6	8	13	12	19.5	8	5	M3	0.013	0.032	
		22	8	10	12	18	17	23.5			12	0.050	
Parallel Type MDY		26		10	12	15	22	20	5	M4	0.068	0.186	
		35		12	15	20	32	29			34.0	22	

Perpendicular Type and Parallel Type cannot be used in combination. Reference values in the case of gap = 0.5mm

Can not be used in combination with products from other manufacturers. Please be sure to order in pairs.

Order Example: Part Number MDQ22 - d 8 Days to Ship 10 Days Price

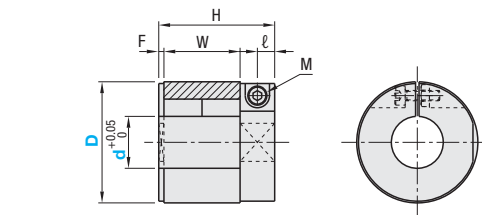
Quantity	1-39	40-49	50-100
Rate	€ Unit Price	5%	10%

Volume Discount (Round down to one Cent) P87

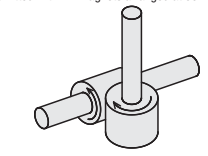
Features: This type is made of plastic and more economical than the standard type. Suitable for use in normal atmosphere. Its allowable torque is almost equivalent to that of Standard Type.

Economy Type

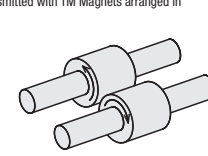
Type	Combined Type	Material
MEQ	Perpendicular Type	Polyacetal
MEY	Parallel Type	



Perpendicular Type
Force is transmitted with TM Magnets arranged at 90°.



Parallel Type
Force is transmitted with TM Magnets arranged in parallel.



Operation Temperature: 0 ~ 60°C

Part Number	Type	d Selection	H	W	l	Lock Screw		F	*Allowable Torque (Nm)		€ Unit Price		
						M	Tightening Torque (Nm)		MEQ	MEY			
Perpendicular Type MEQ		26	12	15	25.5	14	5	M2.5	0.333	1.5	0.098	0.167	
		35		15	20	33.5	22	5	M3	0.422	1.5	0.221	
Parallel Type MEY		45		20	45	30	6.35	M5	0.784	2.0	0.804	-	

Perpendicular Type and Parallel Type cannot be used in combination. Reference values in the case of gap = 0.5mm

Can not be used in combination with products from other manufacturers. Please be sure to order in pairs.

Order Example: Part Number MEQ35 - d 20 Days to Ship 10 Days Price

Quantity	1-39	40-49	50-100
Rate	€ Unit Price	5%	10%

Volume Discount (Round down to one Cent) P87

For orders larger than indicated quantity, please request a quotation.



Rollers

-Straight Type / Crowned Type-(L=15 ~ 100)

CAD Data

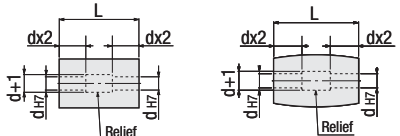


Type				Material	Surface Treatment	Hardness	Straight Type	Crowned Type
Straight		Crowned						
Selectable	Configurable	Selectable	Configurable	Core				
ROLB	-	-	-	1.1191/C45E	Black Oxide	-		
ROLM	-	-	-	1.4301/X5CrNi18-10	Electroless Nickel Plating	-		
ROLS	-	ROCS	-	EN AW-5052/AlMg2.5	Clear Anodize	-		
ROLA	-	ROCA	-	EN AW-5052/AlMg2.5	Clear Anodize	-		
ROUS	ROFUS	ROCUS	-	1.4301/X5CrNi18-10		Shore A90		
ROUA	ROFUA	ROCUA	ROFCUA	EN AW-5052/AlMg2.5		Shore A70		
ROGS	-	ROCGS	ROFCGS	1.4301/X5CrNi18-10	Urethane (Natural Color)	Shore A50		
ROGA	ROFGA	ROCGA	-	EN AW-5052/AlMg2.5		Shore A90		
ROHS	ROFHS	ROCHS	-	1.4301/X5CrNi18-10	Antistatic Urethane (Gray)	Shore A70		
ROHA	ROFHA	ROCHA	-	EN AW-5052/AlMg2.5	Silicon Rubber (Light Gray)	Shore A90		
ROMS	-	-	-	1.4301/X5CrNi18-10	Heat Resisting Urethane (Red Brown) Operation Temperature: ~110°C	Shore A60		
ROMA	-	-	-	EN AW-5052/AlMg2.5	NBR (Black)	Shore A60		
ROSS	-	ROCSS	-	1.4301/X5CrNi18-10				
ROSA	-	-	-	EN AW-5052/AlMg2.5				
ROTS	-	-	-	1.4301/X5CrNi18-10				
ROTA	-	-	-	EN AW-5052/AlMg2.5				
RONA	-	-	-	EN AW-5052/AlMg2.5				

Urethane, Silicon Rubber and NBR are baked on the roller's outer diameter.

When L ≤ dx3, hole d is machined from the same direction.

When L > dx3, hole d is machined from both ends as shown below. There may be no relief in some cases.



L Dimension Selectable

Part Number			D	dH7 Selection	L Selection
Type					
Straight	Core Only	Urethane	20	8	15 20 25 30 40 50
		ROLB	25	8 10 12	15 20 25 *30 40 50
		ROLM	30	8 10 12 *15	15 20 25 30 40 50
		ROLS	35	10 *12 15 20	*20 25 30 *40 50
	Heat Resisting Urethane	ROLA	40	10 12 15 *20	20 25 30 40 50
		ROUS	50	12 15 20 25	25 30 40 50 100
		ROUA	60	12 15 20 25 30	30 40 50 100
		ROGS	80	15 20 *25 30	40 50 100
		ROGA			
		ROFHA			
Crowned	Core Only	Urethane	20	8	15 20 25 30 40 50
		ROCS	25	8 10 12	15 20 25 *30 40 50
		ROCA	30	8 10 12 *15	15 20 25 30 40 50
		ROCUS	35	10 *12 15 20	*20 25 30 *40 50
Silicon	ROCUA	40	10 12 15 *20	20 25 30 40 50	
	ROCGS	50	12 15 20 25	25 30 40 50 100	
	ROCGA	60	12 15 20 25 30	30 40 50 100	
	ROCHS	80	15 20 *25 30	40 50 100	
ROCHA					

D60 and D80 are not available for ROSA, ROCSS and RONA.
* marked sizes are not available for Core Only Type.

L Dimension Configurable

Part Number		D	dH7 Selection	L 1mm Increment
Type				
Straight Urethane	ROFUS	20	8	
	ROFUA	25	8 10 12	16-49
	ROFGA	30	8 10 12 *15	
	ROFHS	35	10 *12 15 20	21-49
	ROFHA	40	10 12 15 *20	
Crowned Urethane	ROFCUA	50	12 15 20 25	26-99
	ROFCGS	60	12 15 20 25 30	31-99
		80	15 20 *25 30	41-99

* marked sizes are not available for Core Only Type. Urethane may discolor over time, but there is no effect on physical properties.

Order Example: Part Number - d - L
ROLB20 - 8 - 30

Days to Ship: 8 Days

-ROLS, ROCS, Urethane L Dimension Selectable Type

-ROLB / ROLM / ROLA / ROCA Heat Resistant Urethane, Urethane L dimension Configurable Type

10 Days Express B 5,00 EUR/piece P88

-Silicon Rubber, NBR

10 Days

Price Volume Discount (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%

L Dimension Selectable

D	L	€ Unit Price																									
		Straight									Crowned																
		Core Only				Urethane				Antistatic Urethane	Silicon	Heat Resisting Urethane		NBR	Core Only			Urethane			Silicon						
		ROLB	ROLM	ROLS	ROLA	ROUS	ROUA	ROGS	ROGA	ROHS	ROHA	ROMS	ROMA	ROSS	ROSA	ROTS	ROTA	RONA	ROCS	ROCA	ROCUS	ROCUA	ROCGS	ROCGA	ROCHS	ROCHA	ROCSS
20	15-25																										
20	30-50																										
25	15-25																										
25	30-50																										
30	15-25																										
30	30-50																										
35	20-25																										
35	30-50																										
40	20-25																										
40	30-50																										
50	25																										
50	30-50																										
60	100																										
60	30-50																										
60	100																										
80	40-50																										
80	100																										

L Dimension Configurable

D	L	€ Unit Price					
		Straight Urethane				Crowned Urethane	
		ROFUS	ROFUA	ROFHS	ROFGA	ROFCUA	ROFCGS
20	16-25						
20	26-49						
25	16-25						
25	26-49						
30	16-25						
30	26-49						
35	21-25						
35	26-49						
40	21-25						
40	26-49						
50	26-50						
50	51-99						
60	31-50						
60	51-99						
80	41-50						
80	51-99						

Alterations Part Number - d - L - (MC / UDC)
ROUS20 - 8 - 30 - UDC

Alterations Code Spec. Price Adder

Tapping L/2 2-M M+1 2-M

Female Thread holes located at 90° are added at two locations.

D	M
20, 25, 30	3
35, 40	4
50, 60, 80	5

Ordering Code MC Price Adder 2,00

Alterations Code Spec. Price Adder

Antistatic Urethane (Urethane Color: Gray) UDC

Changes urethane shore A90 (ROFUS, ROFCUS, ROFUA and ROFCUA) to antistatic urethane.

Ordering Code UDC

Specific Volume Resistivity 2.1x10¹⁰Ωcm
Surface Resistivity 4.0x10¹⁰Ω
(Temperature 30°C/Humidity 60%)

Price Adder 4,00

Refer to the next page for Core Only and Urethane (Natural Color) Female Thread Type.



Rollers -Female Thread Type- -Straight Type / Crowned Type- (L=15 ~ 100)

CAD Data

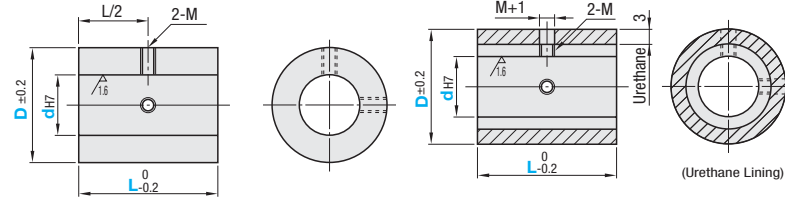


RoHS

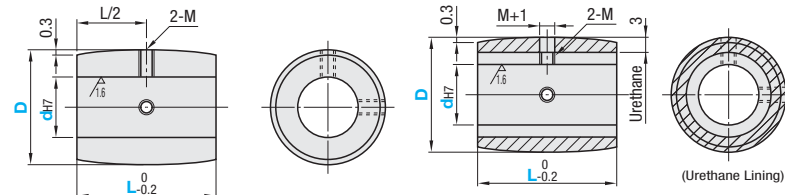
Type	Material Core	Surface Treatment (Lining)	Hardness
Straight			
ROLSN	1.4301/X5CrNi18-10	-	-
ROCSN	1.4301/X5CrNi18-10	-	-
ROLAN	EN AW-5052/AlMg2,5	Clear Anodize	-
ROUSN	1.4301/X5CrNi18-10	-	Shore A90
ROCUSN	1.4301/X5CrNi18-10	-	Shore A70
ROUAN	EN AW-5052/AlMg2,5	Urethane (Natural Color)	Shore A70
ROGSN	1.4301/X5CrNi18-10	-	Shore A50
ROGAN	EN AW-5052/AlMg2,5	-	Shore A50
ROHSN	1.4301/X5CrNi18-10	-	Shore A50
ROHAN	EN AW-5052/AlMg2,5	-	Shore A50

Urethane is baked on the outer circumference of the core material.

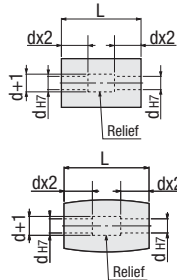
Straight Type



Crowned Type



- When $L \leq dx3$, hole d is machined from the same direction.
- When $L > dx3$, hole d is machined from both ends as shown below. There may be no relief in some cases.



Part Number Type	D	dh7 Selection	L Selection	M
Straight Core Only ROLSN ROCSN ROLAN	20	8	15 20 25 30 40 50	M3
	25	8 10 12	15 20 25 *30 40 50	
	30	8 10 12 *15	15 20 25 30 40 50	
	35	10 *12 15 20	*20 25 30 *40 50	
	40	10 12 15 *20	20 25 30 40 50	
Crowned Core Only ROCSN ROCAN	50	12 15 20 25	25 30 40 50 100	M5
	60	12 15 20 25 30	30 40 50 100	
	80	15 20 *25 30	40 50 100	

*marked sizes are not available for Core Only Type. Urethane may discolor over time, but there is no effect on physical properties.

Order Example: Part Number - d - L
ROLSN30 - 8 - 30
ROUSN50 - 12 - 50

Days to Ship: 8 Days
- ROLSN / ROCSN / Urethane
- ROLAN / ROCAN

10 Days Express B 5,00 EUR/ piece P.88

Price Volume Discount (Round down to one Cent) P.87

Alteration	Code	Spec.	Price Adder
Antistatic Urethane (Urethane Color: Gray)	UDC	Urethane Shore A90 (ROUSN, ROCUSN, ROUAN and ROCUAN) is changed to Antistatic Urethane. [Ordering Code]UDC Specific Volume Resistivity $2.1 \times 10^{10} \Omega \text{cm}$ Surface Resistivity $4.0 \times 10^9 \Omega$ (Temperature 30°C/Humidity 60%)	4,00

D	L	€ Unit Price											
		Straight					Crowned						
		Core Only		Urethane			Core Only		Urethane				
		ROLSN	ROLAN	ROUSN	ROUAN	ROGSN ROHSN	ROGAN ROHAN	ROCSN	ROCAN	ROCUSN	ROCUAN		
20	15-25 30-50												
25	15-25 30-50												
30	15-25 30-50												
35	20-25 30-50												
40	20-25 30-50												
50	25 30-50												
60	30-50 100												
80	40-50 100												



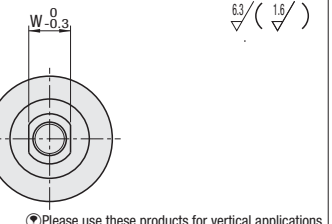
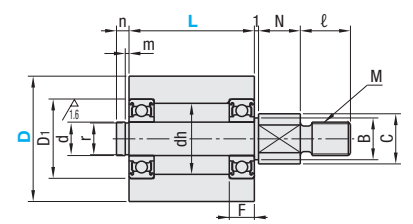
Vertical Guide Rollers / Rollers with Oil Free Bushing

CAD Data

Features: Preassembled rollers contribute to labor savings.



Type	Material			Surface Treatment		
	Rollers	Shaft	Retaining Ring	Rollers	Shaft	Retaining Ring
TGRB	1.1191/C45E	1.1191/C45E	Spring Steel	Electroless Nickel Plating	Electroless Nickel Plating	-
TGRS	1.4301/X5CrNi18-10	1.4301/X5CrNi18-10	1.4301/X5CrNi18-10	-	-	-



Please use these products for vertical applications.

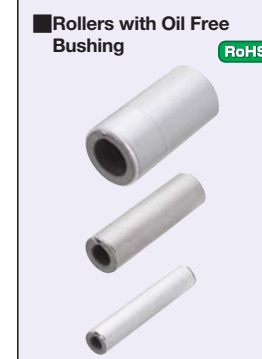
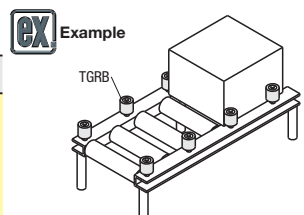
Part Number Type	D	L Selection	N	d	ℓ	C	B	r	n	m	dh	D1	F	M (Coarse)	W	Used Bearing	Retaining Ring Standards		€ Unit Price	
																	Shape	JIS Nominal	TGRB	TGRS
TGRB (1.1191/C45E)	20	25	10	6	9	10	8	5	2	0.7	10	15	5	6	8	696ZZ	E Type	No.5		
	25	30 40 50																		
	30	20 25 30 40 50																		
TGRS (1.4301/X5CrNi18-10)	35	20 25 30 40 50	10	8	12	12	10	7	3	0.9	15	19	6	8	10	698ZZ	C Type	No.7		
	40	20 25 30 40 50																		
	40	20 25 30 40 50																		
	50	25 30 40 50																		

Order Example: Part Number - L - (NC)
TGRS30 - 30 - NC

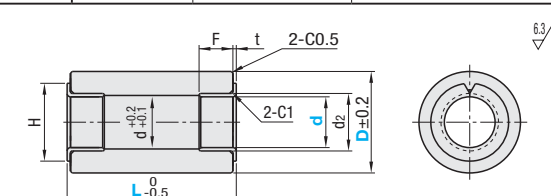
Days to Ship: 8 Days

Quantity	Rate	€ Unit Price	5%	10%	18%
1-9					
10-14					
15-19					
20-30					

Alteration	Code	Spec.	Price Adder
N Dimension Changes	NC	Ordering Code NC15 NC=1mm Increment 5 ≤ NC ≤ 30	2,00



Type	Material	Surface Treatment	Oil Free Bushings	Bushing Details				
				Inner Diameter	Tolerance	F	d2	H
FRTA	EN AW-5052/AlMg2,5	Clear Anodize	Filler Added PTFE Layer Sintered Bronze layer Steel-backed Metal Layer (1.0330/DC01: Tin Plating)	3	+0.062 0	5	4.6	7
FRTS	1.4301/X5CrNi18-10	-	-	5	+0.065 0	5	7	10
				6	+0.065 0	8	8	12
				8		10	10	15
				10		10	12	18
				12	+0.068 0	10	14	20
				15		10	17	23



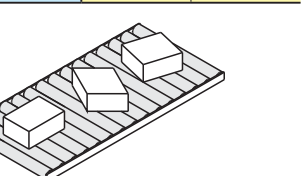
Part Number Type	D	d (Inner Diameter) Selection	L Selection	t	€ Unit Price	
					FRTA	FRTS
FRTA (EN AW-5052/AlMg2,5)	8	3	20 25 30 40 50	0.8		
	10	5				
	12	5 6				
	15	6 8				
FRTS (1.4301/X5CrNi18-10)	18	8 10				
	20	10 12				
	25	10 12 15				
	30	10 12 15				

Order Example: Part Number - d - L
FRTA10 - 5 - 30

Days to Ship: 10 Days

Quantity	Rate	€ Unit Price	5%	10%	18%
1-9					
10-14					
15-19					
20-30					

Price Volume Discount (Round down to one Cent) P.87





Rollers

-Bearing Type- (L=15 ~ 100)

CAD Data

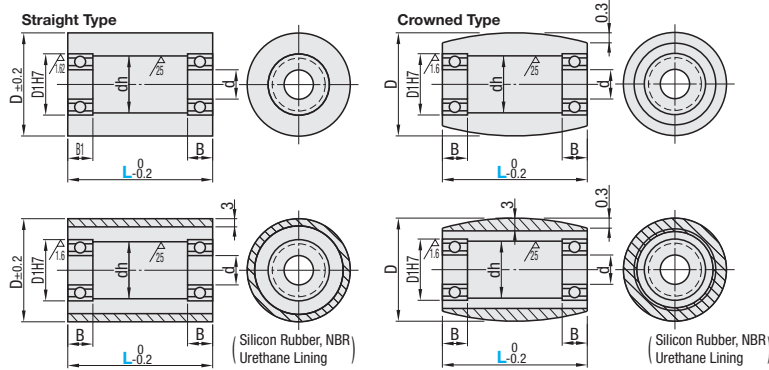


RoHS

Type			Material Core	Surface Treatment (Lining)	Bearing	Hardness
L Selectable	L Configurable	L Selectable				
RORB	-	ROCRB	1.1191/C45E	Black Oxide	Steel	-
RORM	-	ROCRM	1.4301/X5CrNi18-10	Electroless Nickel Plating	Steel	-
RORS	-	ROCRS	EN AW-5052/AlMg2,5	-	Steel	-
RORA	-	ROCRA	EN AW-5052/AlMg2,5	Clear Anodize	Steel	-
RORUS	ROFRUS	ROCRUS	1.4301/X5CrNi18-10	-	Steel	-
RORUZ	-	-	1.4301/X5CrNi18-10	-	Stainless Steel	Shore A90
RORUA	ROFRUA	ROCRUA	EN AW-5052/AlMg2,5	-	Steel	-
RORGS	-	-	1.4301/X5CrNi18-10	Urethane (Natural Color)	Steel	Shore A70
RORGA	ROFRGA	ROCRGA	EN AW-5052/AlMg2,5	-	Steel	-
RORHS	-	ROCRHS	1.4301/X5CrNi18-10	-	Steel	Shore A50
RORHA	ROFRHA	-	EN AW-5052/AlMg2,5	-	Steel	-
RORSSA	ROFRSS	ROCRSS	1.4301/X5CrNi18-10	-	Steel	Shore A70
RORSA	-	-	EN AW-5052/AlMg2,5	-	Steel	Shore A50
RORJA	-	-	EN AW-5052/AlMg2,5	-	Steel	Shore A70
RORWS	-	-	1.4301/X5CrNi18-10	Silicon Rubber (White)	Steel	Shore A70
RORTS	-	-	1.4301/X5CrNi18-10	Heat Resisting Urethane (Red Brown)	Steel	Shore A90
RORTA	-	-	EN AW-5052/AlMg2,5	Operation Temperature: ~ 110°C	Steel	Shore A90
RORNS	-	-	1.4301/X5CrNi18-10	-	Steel	Shore A60
RORNA	-	-	EN AW-5052/AlMg2,5	NBR (Black)	Steel	Shore A60

Urethane, Silicon Rubber and NBR are baked on the roller's outer diameter.

6.3 / (2.5 / 1.5)



For detailed bearing dimensions, please see P.907-908

L Dimension Selectable

Part Number		D	L Selection							d	D1 (H7)	dh	B	Bearing
Type	No.		15	20	25	30	40	50						
Straight	Core Only	20	15	20	25	30	40	50	6	15	10	5	696ZZx2	
			25	20	25	30	40	50	6	15	10	5	696ZZx2	
	Silicon Rubber	30	20	25	30	40	50	8	19	15	6	698ZZx2		
			35A	25	30	40	50	8	22	15	7	608ZZx2		
	Urethane	35	25	30	40	50	10	22	18	6	6900ZZx2			
			40A	25	30	40	50	10	26	18	8	6000ZZx2		
	Heat Resisting Urethane	40	25	30	40	50	12	28	24	8	6001ZZx2			
			50A	25	30	40	50	12	32	24	10	6201ZZx2		
	NBR	50	25	30	40	50	15	32	28	9	6002ZZx2			
			50	25	30	40	50	15	32	28	9	6002ZZx2		

D20 is only applicable for Core Only Types (RORB, RORM, RORS, RORA, ROCRB, ROCRM, ROCRS and ROCRS).

L Dimension Configurable (Straight Only)

Part Number		D	L 1mm Increment							d	D1 (H7)	dh	B	Bearing
Type	No.		21	22	23	24	25	26						
Urethane	25	21	22	23	24	25	26	6	15	10	5	696ZZx2		
		30	21	22	23	24	25	26	8	19	15	6	698ZZx2	
	35A	21	22	23	24	25	26	8	22	18	7	608ZZx2		
		35	21	22	23	24	25	26	10	22	18	6	6900ZZx2	
	40A	21	22	23	24	25	26	10	26	18	8	6000ZZx2		
		40	21	22	23	24	25	26	12	28	24	8	6001ZZx2	
	50A	21	22	23	24	25	26	12	32	24	10	6201ZZx2		
		50	21	22	23	24	25	26	15	32	28	9	6002ZZx2	

Urethane may discolor over time, but there is no effect on physical properties.



Part Number	-	L
RORB30	-	30
ROFRSS40	-	38



- RORS / ROCRS / Urethane L Dimension Selectable Type
8 Days

- RORB / RORM / RORA / ROCRB / ROCRM / ROCRS
Heat Resisting Urethane • Urethane L Configurable Type

10 Days Express B 5,00 EUR/piece P.88

A Express Charge of 13,50 EUR for 3 or more identical pieces.

- Silicon Rubber -NBR

10 Days



Price Volume Discount (Round down to one Cent.) P.87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%

For orders larger than indicated quantity, please request a quotation.

L Dimension Selectable

D	L	€ Unit Price																				
		Straight																				
		Core Only				Urethane				Silicon				Heat Resisting Urethane		NBR						
		RORB	RORM	RORS	RORA	RORUS	RORUZ	RORUA	RORGS	RORGA	RORHS	RORHA	RORSSA	RORSA	RORJS	RORJA	RORWS	RORTS	RORTA	RORNS	RORNA	
20	15-25																					
	30-50																					
25	20-25																					
	30-50																					
30	20-25																					
	30-50																					
35	25																					
	35A																					
40	25																					
	40A																					
50	25																					
	50A																					
50A	30-50																					
	100																					

D	L	€ Unit Price									
		Crowned									
		Core Only				Urethane				Silicon	
		ROCRB	ROCRM	ROCRS	ROCRS	ROCRUS	ROCRUA	ROCRGA	ROCRHS	ROCRSS	
20	15-25										
	30-50										
25	20-25										
	30-50										
30	20-25										
	30-50										
35	25										
	35A										
40	25										
	40A										
50	25										
	50A										
50A	30-50										
	100										

L Dimension Configurable

D	L	€ Unit Price				
		Straight				
		Urethane		Silicon		
		ROFRUS	ROFRUA	ROFRGA	ROFRHA	ROFRSS
25	21-25					
	26-49					
30	21-25					
	26-49					
35	26-49					
	40					
40A	26-49					
	40					
50	26-50					
	50A					
50A	51-99					




Part Number	-	L	-	(UDC / SB)
RORNS40	-	50	-	SB

Alterations	Code	Spec.	Price Adder	Alterations	Code	Spec.	Price Adder
Antistatic Urethane (Urethane Color: Gray)	UDC	Changes urethane Shore A90 to antistatic urethane. Ordering Code UDC Volume Inherent Resistivity 2.1x10 ⁹ Ωcm Surface Resistivity 4.0x10 ⁹ Ω (Temperature 30°C/Humidity 60%)	4,00	Bearing Material	SB	Bearing material is changed to stainless steel. Ordering Code SB	D20 / 25 4,00 D30 5,00 D35 6,00 D40 9,00 D50 10,00

Rollers

-Urethane Thickness Selectable Type-

CAD Data



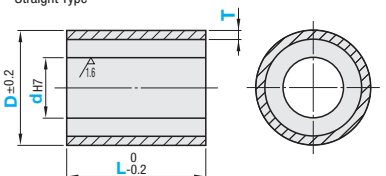
RoHS

Type			Material		Hardness	Bearing
No Bearing	With Bearing		Core	Lining		
ROEUS	ROERUS	ROECRUS	1.4301/X5CrNi18-10	Urethane (Natural Color)	Shore A90	Steel
ROEUA	ROERUA	ROECRUA	EN AW-5052/AlMg2.5			
ROEGS	ROERGS	-	1.4301/X5CrNi18-10			
ROEGA	ROERGA	ROECRGA	EN AW-5052/AlMg2.5			
-	ROERHS	-	1.4301/X5CrNi18-10			
-	ROERHA	ROECRHA	EN AW-5052/AlMg2.5			

Urethane is baked on the outer circumference of the core material.

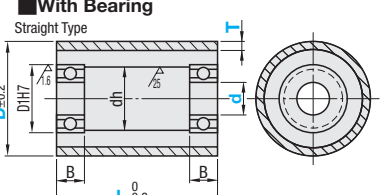
No Bearing

Straight Type

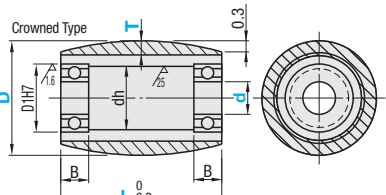


With Bearing

Straight Type



Crowned Type



When $L \leq dx3$, hole d is machined from the same direction.
 When $L > dx3$, hole d is machined from both ends as shown below. There may be no relief in some cases.

No Bearing Type				Bearing Type									
Part Number	D	dh7 Selection	L 10mm Increment	T Selection	Part Number	D	d Selection	L 10mm Increment	T Selection	D1	dh	B	Bearing
Straight ROEUS ROEUA ROEGS ROEGA	40	8 10 12 15	20~50	5 10	Straight Crowned ROERUS ROECRUS ROERUA ROECRUA ROERGS ROECRGA ROERGA ROECRGA ROERHS ROECRHA ROERHA	40	8	20~50	5	19	15	6	698ZZx2
		10					22			18	6	6900ZZx2	
		12					22			18	6	6900ZZx2	
	50	10 12 15 20	30~100			50	12	28		24	8	6001ZZx2	
		15					32	28		9	6002ZZx2		
		20					28	24		8	6001ZZx2		
	60	12 15 20 25	30~100			60	15	32		28	9	6002ZZx2	
		20					42	36		12	6004ZZx2		
		25					32	28		9	6002ZZx2		
	80	15 20 25 30	30~100			80	20	42		36	12	6004ZZx2	
		25					47	41		12	6005ZZx2		
		30					42	36		12	6004ZZx2		
100	20 25 30 40	30~100	100	25	47	41	12	6005ZZx2					
	30			55	48	13	6006ZZx2						
	40			55	48	13	6006ZZx2						

No Bearing

D	L	€ Unit Price Straight			
		ROEUS	ROEUA	ROEGS	ROEGA
40	20				
	30 · 40 · 50				
50	30 · 40 · 50				
	60~100				
60	30 · 40 · 50				
	60 · 70				
80	80 · 90 · 100				
	30 · 40 · 50				
100	60 · 70				
	80 · 90 · 100				

Order Example: **ROEUS60 - 20 - 50 - T5**

Days to Ship: **10 Days**

Price: **Volume Discount** (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19
Rate	€ Unit Price	5%	10%

For orders larger than indicated quantity, please request a quotation.

Alterations: **ROEUA50 - 12 - 50 - T5 - MC**

With Bearing

D	L	€ Unit Price									
		Straight					Crowned				
		ROERUS	ROERUA	ROERGS	ROERGA	ROERHA	ROECRUS	ROECRUA	ROECRGA	ROECRHS	ROECRHA
40	20										
	30 · 40 · 50										
50	30 · 40 · 50										
	60~100										
60	30 · 40 · 50										
	60 · 70										
80	80 · 90 · 100										
	30 · 40 · 50										
100	60 · 70										
	80 · 90 · 100										

Alterations: **MC**

Spec. Female Thread holes located at 90° are added at two locations.

D	M
40	4
50	5
60	6
80	8
100	10

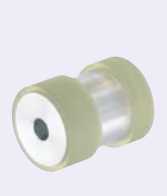
Ordering Code: MC

Price Adder: 2,00

Available for No Bearing Type only.

Groove Rollers

CAD Data

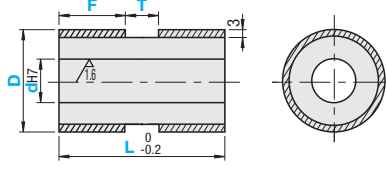


RoHS

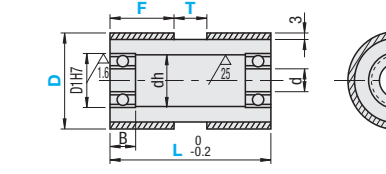
Type		Material		Hardness
No Bearing	With Bearing	Core	Lining	
ROUAM	RORUAM	EN AW-5052/AlMg2.5	Urethane (Natural Color)	Shore A90
ROUSM	-	1.4301/X5CrNi18-10		

Urethane is baked on the outer circumference of the core material.

No Bearing



With Bearing



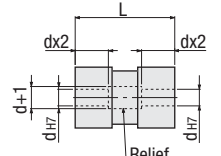
No Bearing

Part Number	D	dh7	1mm Increment	
			L	F T
ROUAM ROUSM	25	8 10 12	15-50	
	30	8 10 12 15		0-46 (F+T≤L-2)
	35	10 12 15 20	20-50	
	40	10 12 15 20		0-96 (F+T≤L-2)
	50	12 15 20 25	25-100	
	60	12 15 20 25 30	30-100	
	80	15 20 25 30	40-100	

With Bearing

Part Number	D	L	F	T	d	D1H7	dh	B	Bearing
									RORUAM
25	20-50	0-46 (F+T≤L-2)	6	15	10	5	696ZZx2		
30			8	19	15	6	698ZZx2		
35	25-50		10	22	18	6	6900ZZx2		
40			12	28	24	8	6001ZZx2		
50	25-100	2-96 (F+T≤L-2)	15	32	28	9	6002ZZx2		

When $L \leq dx3$, hole d is machined from the same direction.
 When $L > dx3$, hole d is machined from both ends and shaped as shown in the drawing below. There may be no relief alterations.



Urethane may discolor over time, but there is no effect on physical properties.

Price

Volume Discount (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%

For orders larger than indicated quantity, please request a quotation.

Order Example: **ROUSM30 - 8 - L30 - F10 - T5**
RORUAM40 - L40 - F8 - T3

Days to Ship: **10 Days**

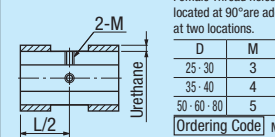
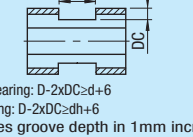
Express B: 5,00 EUR/piece P88

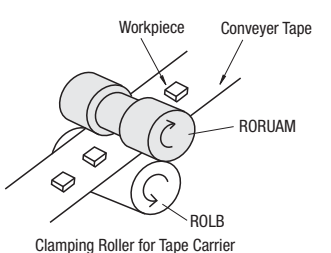
A Express Charge of 13,50 EUR for 3 or more identical pieces.

D	L	€ Unit Price		
		No Bearing	ROUSM	With Bearing
25	15 (20) - 25	ROUAM		RORUAM
	26-50			
30	15 (20) - 25			
	26-50			
35	20 (25) - 25			
	26-50			
40	20 (25) - 25			
	26-50			
50	25			
	26-50			
60	51-100			
	30-50			
80	51-100			
	40-50			
	51-100			

L dimension in () are for Bearing Type.

Alterations: **ROUSM30 - 8 - L30 - F10 - T5 - MC**
RORUAM30 - L40 - F10 - T5 - SB

Alterations	Tapping	Groove Depth	Bearing Material
Code	MC	DC	SB
Spec.	Female Thread holes located at 90° are added at two locations.  D M 25-30 3 35-40 4 50-60-80 5 Ordering Code: MC Available for No Bearing Type only.	 No Bearing: D-2xDC≥d+6 Bearing: D-2xDC≥dh+6 Changes groove depth in 1mm increment. Ordering Code: DC5	Changes the material of bearings to stainless steel. Ordering Code: SB Available for Bearing Type only.
Price Adder	2,00	6,00	D25 4,00 D30 5,00 D35 6,00 D40 9,00 D50 10,00





Plastic Roller

-Milled Type / Press-fit Type-

Reduced Delivery Time
Price Reduction
 UP to 36%

CAD Data

Milled Type RoHS

Type	Material Body	Bearing
RORPOS RORPOWF	Polyacetal	Steel
RORPHS RORPHWF	Ultra High Molecular Weight Polyethylene	Stainless Steel
RORPES RORPEWF	Ultra High Molecular Weight Polyethylene	Steel
RORPJS RORPJWF	Polypropylene	Stainless Steel
RORPQS	Polypropylene	Stainless Steel
RORPQS	Polypropylene	Stainless Steel
RORMCS RORMCWF	MC Nylon	Steel

Press-fit Type

Type	Material
ROASP RORASP	Core: 1.4301/X5CrNi18-10 EN AW-5052/AlMg2,5
ROAAP RORAAP	Plastic: Polyacetal

When L ≤ dx3, hole d is machined from the same direction.
 When L > dx3, hole d is machined from both ends as shown below. There may be no relief in some cases.

Material

Material	Core	Lining	Hardness
RONUA ROEKUA ROENUA	1.4301/X5CrNi18-10	Urethane (Natural Color)	Shore A90
RONGS ROEKGS ROENGS	1.4301/X5CrNi18-10	Urethane (Natural Color)	Shore A70
RONHA ROEKHA ROENHA	EN AW-5052/AlMg2,5	Urethane (Natural Color)	Shore A50
RONSS	1.4301/X5CrNi18-10	Silicon Rubber	Shore A70
RONSA	EN AW-5052/AlMg2,5	Silicon Rubber	Shore A70

Urethane and silicon are baked on the outer circumference of the core material.

Straight Type										Double Flanged Type													
Part Number	Type	No.	L	Bearing	D	D1	d	B	(dh)	Part Number	Type	No.	D	L	E	G	Bearing	F	D1	d	B	(dh)	
RORPOS	RORPHS	20	15-50	696ZZx2	20	15	6	5	10	RORPOWF	RORPHWF	40	30-35	20-50	5-10	5-10	6900ZZx2	40	22	10	6	18	
RORPES	RORPJS	30	20-50	698ZZx2	30	19	8	6	15	RORPEWF	RORPJWF	50	35-45	40-100	5-10	5-10	6001ZZx2	50	28	12	8	24	
RORPSS	RORPQS	40	20-50	6900ZZx2	40	22	10	6	18	RORMCS	RORMCWF	60	40-100	6001ZZx2	50	28	12	8	24				
		50	40-100	6002ZZx2	60	32	15	9	28			80	40-100	6002ZZx2	80	32	15	9	28				
		60	40-100	6002ZZx2	60	32	15	9	28														
		80	40-100	6002ZZx2	80	32	15	9	28														

Press-Fit Type		Part Number	Type	D	dh7	L Selection	Bearing Type	
Straight Type	Bearing Type						d	D1 (H7)
ROASP	RORAAP			20	8	15 20 25 30 40 50	-	-
				25	8 10 12	15 20 25 30 40 50	6	15 10 5 696ZZx2
				30	8 10 12 15	15 20 25 30 40 50	8	19 15 6 698ZZx2
				35	10 12 15 20	20 25 30 40 50 10	10	22 18 6 6900ZZx2
				40	10 12 15 20	20 25 30 40 50 12	12	28 24 8 6001ZZx2
				50	12 15 20 25	25 30 40 50 15	15	32 28 9 6002ZZx2

Order Example Part Number - D - d - L - E - G

(Straight) RORPOS80 - L75
 (Double Flanged) RORPOWF80 - D60 - L90 - E10 - G10
 (Press-Fit) RORAAP30 - d12 - L40

Price RoHS **Volume Discount** (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19
Rate	€ Unit Price	5%	10%

Days to Ship **10 Days** **8 Days**

Express B 5,00 EUR/ piece **P.88**
 Express Charge of 13,50 EUR for 3 or more identical pieces.

No.	€ Unit Price															
	Polyacetal				Ultra High-Molecular-Weight Polyethylene				Polypropylene							
20	L15	L26	L51	L76	L15	L26	L51	L76	L15	L26	L51	L76	L15	L26	L51	L76
30	-25	-50	-75	-100	-25	-50	-75	-100	-25	-50	-75	-100	-25	-50	-75	-100
40																
50																
60																
80																

No.	€ Unit Price															
	Straight				Double Flanged				Double Flanged							
20	L20	L26	L51	L76	L20	L26	L51	L76	L20	L26	L51	L76	L20	L26	L51	L76
30	-25	-50	-75	-100	-25	-50	-75	-100	-25	-50	-75	-100	-25	-50	-75	-100
40																
50																
60																
80																

D	€ Unit Price			
	Press-fit / Straight Type	Press-fit / Bearing Type	Polyacetal	
20	ROASP	ROAAP	RORASP	RORAAP
25	L15	L30	L15	L30
30	-25	-50	-25	-50
40				
50				
60				
80				

Features:
 - Polyacetal: Material which excels in mechanical strength.
 - Ultra High Molecular Weight Polyethylene: Material excellent in abrasion resistance and is compliant to the Food Sanitation Laws.
 - Polypropylene: Material which excels in chemical resistance.
 - MC Nylon: Material excellent in mechanical strength and wear resistance.

Rollers

-Straight Type with Set Screw Holes-

CAD Data

Milled Type RoHS

Set Screw Hole at One End

Set Screw Holes at Both Ends

L Dimension Selectable	Urethane Thickness Selectable Type	Material	Hardness
RONUA ROEKUA ROENUA	ROEKUS ROENUS	1.4301/X5CrNi18-10	Shore A90
RONGS ROEKGS ROENGS	ROEKGA ROENGA	1.4301/X5CrNi18-10	Shore A70
RONHA ROEKHA ROENHA	ROEKHA ROENHA	EN AW-5052/AlMg2,5	Shore A50
RONSS		1.4301/X5CrNi18-10	Shore A70
RONSA		EN AW-5052/AlMg2,5	Shore A70

Urethane and silicon are baked on the outer circumference of the core material.

When L+2B ≤ dx3, hole d is machined from the same direction.
 When L+2B > dx3, hole d is machined from both ends as shown above. There may be no relief in some cases.

L Dimension Selectable Type (Set Screw Holes at Both Ends Type Only)

Part Number	Type	D	dh7 Selection	L Selection	T	B	M
RONSS	RONUA	20	8	15 20 25 30 40 50	3	8	M3
RONSA	RONGS	25	8 10 12	15 20 25 30 40 50			
RONUS	RONGA	30	8 10 12 15	15 20 25 30 40 50			
	RONHA	35	10 12 15	20 25 30 40 50			
		40	10 12 15	20 25 30 40 50			
		50	12 15	25 30 40 50 100			

Order Example Part Number - d - L - T

RONSS20 - 8 - 30
 ROEKUA50 - 15 - 80 - T10

Days to Ship **8 Days**

Urethane

Silicon Rubber, Urethane Thickness Selectable Type

10 Days

Urethane Thickness Selectable Type (Set Screw Holes at One End / Both Ends)

Part Number	Type	D	dh7 Selection	L Selection	T	B	M
ROEKUS	ROENUS	40	10 12 15	30-50	5	10	M5
ROEKUA	ROENUA	50	10 12 15				
ROEKGS	ROENGA	60	12 15 20				
ROEKGA	ROENGA	80	15 20 25				
ROEKHA	ROENHA	100	20 25 30				

L Dimension Selectable Type (Set Screw Holes at Both Ends Type Only)

D	L	€ Unit Price					
		RONSS	RONSA	RONUS	RONUA	RONGS	RONGA RONHA
20	15 / 20 / 25						
25	15 / 20 / 25						
30	15 / 20 / 25						
35	20 / 25						
40	20 / 25						
50	30 / 40 / 50						
60	30 / 40 / 50						
80	30 / 40 / 50						
100	100						

Urethane Thickness Selectable Type (Set Screw Holes at One End / Both Ends)

D	L	€ Unit Price							
		ROEKUS	ROEKUA	ROEKGS	ROEKGA	ROEKHA	ROENUS	ROENUA	ROENGA
40	30-50								
50	30-50								
60	30-50								
80	30-50								
100	30-50								

Alterations Part Number - d - L - T - (UDC)

RONUS20 - 8 - 30 - UDC
 ROEKUS50 - 15 - 80 - T10 - UDC

Alteration	Code	Spec.	Price Adder
Antistatic Urethane (Urethane Color: Gray)	UDC	Urethane Shore A90 (ROUS, ROCUS, ROUAN and ROCUAN) is changed to antistatic urethane. [Ordering Code] UDC Specific Volume Resistivity 2.1x10 ¹⁰ Ωcm Surface Resistivity 40x10 ¹⁰ Ω-cm (Temperature 30°C/Humidity 60%)	4,00

Example

As a feeding roller for a card collator

Urethane Thickness Selectable Type (Set Screw Holes at One End / Both Ends)

D	L	€ Unit Price							
		ROEKUS	ROEKUA	ROEKGS	ROEKGA	ROEKHA	ROENUS	ROENUA	ROENGA
40	30-50								
50	30-50								
60	30-50								
80	30-50								
100	30-50								

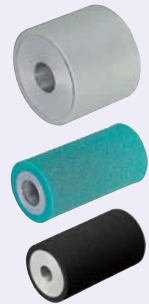
Urethane may discolor over time, but there is no effect on physical properties.

Rollers

-Press-Fit Straight Type-

Core material is press-fit in the surface material and more economical than the baked type.

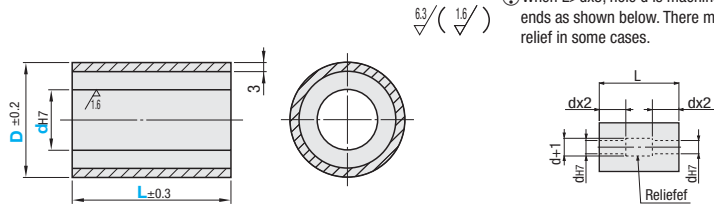
Press-Fit Straight Type **RoHS**



Type	Material		Hardness
	Core	Urethane / Plastic	
ROUSP	1.4301/X5CrNi18-10	Urethane (Natural Color)	Shore A90
ROUAP	EN AW-5052/AlMg2,5	Urethane (Natural Color)	Shore A90
ROMAP	EN AW-5052/AlMg2,5	Foam Urethane (Green)	Shore A65
ROSAP	EN AW-5052/AlMg2,5	Chloroprene Rubber Sponge	Shore A25

Urethane, foam urethane and chloroprene rubber sponges are press-fit into the core circumference.

When L < dx3, hole d is machined from the same direction.
When L > dx3, hole d is machined from both ends as shown below. There may be no relief in some cases.



Part Number Type	D	dh7 Selection					L Selection					
		20	25	30	40	50	15	20	25	30	40	50
Urethane	20	8					15	20	25	30	40	50
Foam Urethane	(25)	8	10	12			15	20	25	30	40	50
Chloroprene Rubber Sponge	(30)	8	10	12	15		15	20	25	30	40	50
	35		10	12	15	20		20	25	30	40	50
	40		10	12	15	20		20	25	30	40	50
	(50)		12	15	20	25		25	30	40	50	50

Chloroprene rubber sponge is available in sizes in () only.

Order Part Number - d - L
Example ROUSP20 - 8 - 30

Days to Ship - Urethane, Form Urethane - Chloroprene Rubber Sponge
8 Days 13 Days

Price Volume Discount (Round down to one Cent.) P87
Quantity Rate € Unit Price 5% 10% 18%

Alterations Part Number - d - L - (MC / UDC)
ROUSP20 - 8 - 30 - UDC

D	L	€ Unit Price			
		ROUSP	ROUAP	ROMAP	ROSAP
20	15-25				
	30-50				
25	15-25				
	30-50				
30	15-25				
	30-50				
35	20-25				
	30-50				
40	20-25				
	30-50				
50	25				
	30-50				

Alterations	Code	Spec.	Price Adder								
Tapping 	MC	Adds 2 tapped holes at 90°. <table border="1"> <tr> <th>D</th> <th>M</th> </tr> <tr> <td>20, 25, 30</td> <td>3</td> </tr> <tr> <td>35, 40</td> <td>4</td> </tr> <tr> <td>50</td> <td>5</td> </tr> </table> Ordering Code MC	D	M	20, 25, 30	3	35, 40	4	50	5	2,00
D	M										
20, 25, 30	3										
35, 40	4										
50	5										
Antistatic Urethane (Urethane Color: Gray)	UDC	Urethane Shore A90 is changed to antistatic urethane. Ordering Code UDC Specific Volume Resistivity 2.1x10 ⁹ Ωcm Surface Resistivity 4.0x10 ⁹ Ω (Temperature 30°C/Humidity 60%) Not applicable to foam urethane (ROMAP).	4,00								

Urethane Load (Reference)

Material	Load Standard N(kgf)	
	Radial	Axial
Urethane	147 (15)	242 (25)
Foam Urethane	97 (10)	97 (10)
Chloroprene Rubber Sponge	-	18 (2)

*Data above are for reference only, not guaranteed values.

Urethane, foam urethane and chloroprene rubber sponges are press-fit into the core. Therefore, unbalanced load may cause urethane and sponge part to slip or misalign with the core.

Urethane may discolor over time, but there is no effect on physical properties.

Foam Urethane

Closed-cell foamed urethane. Each bubble is divided by walls resulting in lower absorption of water, oil and chemicals compared to general sponges with connected cells. Also, it excels in gripping power and shock absorption compared to conventional urethane and other general rubber products. Especially suitable for conveying thin materials.

Chloroprene Rubber Sponge

Synthetic rubber made of polymerized chloroprene. Superior to natural rubber in resilience, weather fastness and ozone resistance, and also features resistance to heat, cold and oil. While it is a well-balanced rubber material, it is not suitable for use in low temperature (less than -35°C). Mainly used for general industrial products.

For characteristics, please see P.2-358

Rollers / Aluminum Rollers

-Press-Fit Bearing Type-

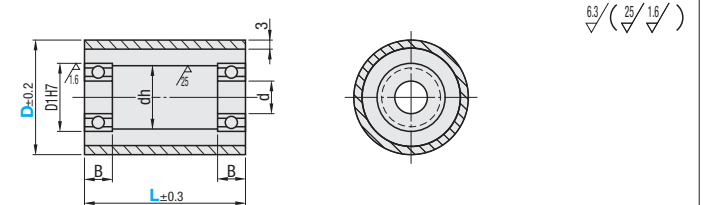
CAD Data

Press-Fit Straight Type with Bearings **RoHS**



Type	Material		Hardness	Bearing
	Core	Urethane / Plastic		
RORUSP	1.4301/X5CrNi18-10	Urethane (Natural Color)	Shore A90	Steel
RORUAP	EN AW-5052/AlMg2,5	Urethane (Natural Color)	Shore A90	
RORMSP	1.4301/X5CrNi18-10	Foam Urethane (Green)	Shore A65	Steel
RORMAP	EN AW-5052/AlMg2,5	Foam Urethane (Green)	Shore A65	
RORSAP	EN AW-5052/AlMg2,5	Chloroprene Rubber Sponge	Shore A25	

Urethane, foam urethane and chloroprene rubber sponge are press-fit on the outer circumference of the core material.



Part Number Type	D	L Selection					d	D1 (H7)	dh	B	Bearing
		20	25	30	40	50					
Urethane	25	20	25	30	40	50	6	15	10	5	B696ZZx2
Foam Urethane	30	20	25	30	40	50	8	19	15	6	B698ZZx2
Chloroprene Rubber Sponge	35		25	30	40	50	10	22	18	6	B6900ZZx2
	40		25	30	40	50	12	28	24	8	B6001ZZx2
	50		25	30	40	50	15	32	28	9	B6002ZZx2

Order Part Number - L
Example RORUSP25 - 30

Days to Ship - Other than listed on the right - Chloroprene Rubber Sponge
8 Days 13 Days

Price Volume Discount (Round down to one Cent.) P87
Quantity Rate € Unit Price 5% 10% 18%

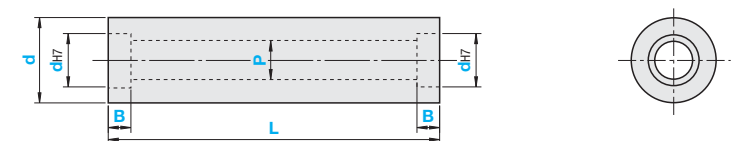
Alterations Part Number - L - (UDC / SB)
RORUSP25 - 30 - UDC

D	L	€ Unit Price				
		RORUSP	RORUAP	RORMSP	RORMAP	RORSAP
25	20-25					
	30-50					
30	20-25					
	30-50					
35	25					
	30-50					
40	25					
	30-50					
50	25					
	30-50					

Alterations	Code	Spec.	Price Adder
Antistatic Urethane (Urethane Color: Gray)	UDC	Urethane Shore A90 is changed to antistatic urethane. Ordering Code UDC Specific Volume Resistivity 2.1x10 ⁹ Ωcm Surface Resistivity 4.0x10 ⁹ Ω (Temperature 30°C/Humidity 60%) Not applicable to foam urethane.	4,00
Bearing Material	SB	Bearing material is changed to stainless steel. Chloroprene Rubber Sponge is not applicable.	D25 4,00 D30 5,00 D35 6,00 D40 9,00 D50 10,00

Aluminum Rollers **RoHS**

AROE



Material: EN AW-5052/AlMg2,5 Surface Treatment: Clear Anodize

Part Number Type	D	L 1mm Increment	d 1mm Increment	B 1mm Increment	P 1mm Increment	€ Unit Price				
						L50-100	L101-150	L151-200	L201-250	L251-300
AROE	30									
	40	50-300	19-55 (d=D-5)	4-15	15-53 (P=d-2)					
	50									
	60									

Order Part Number - L - d - B - P
Example AROE30 - 100 - 24 - B6 - P22

Days to Ship 10 Days

Price

Volume Discount (Round down to one Cent.) P87
Quantity Rate € Unit Price 5% 10% 18%

For orders larger than indicated quantity, please request a quotation.

Hollow Rollers

-Straight Type (L=100 ~ 500)-

Price Reduction

8%



Hollow Rollers

-Bearing Type (L=100 ~ 500)-

Price Reduction

8%

CAD Data

CAD Data

Drawn aluminum pipes are used. Lightweight and reasonably priced.

Drawn aluminum pipes are used. Lightweight and reasonably priced.

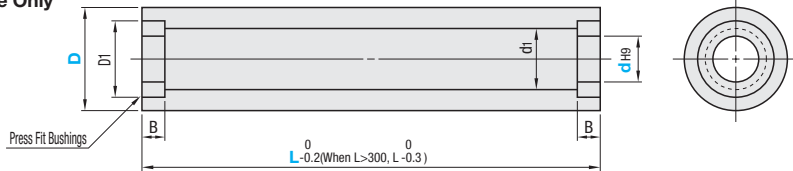
Straight Type

RoHS

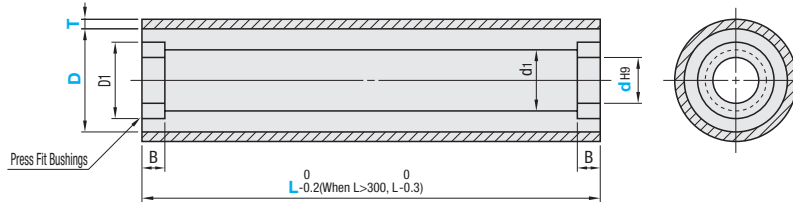
Type	Material Core	Surface Treatment (Lining)	Hardness
ROLLA	EN AW-5052/AlMg2,5	Clear Anodize	-
ROLAU		Urethane (Natural Color)	Shore A90
ROLAG			Shore A70

Surface treatment may not be applied to shaft end and inner diameter.
Urethane is baked on the outer circumference of the core material.

Core Only



Urethane Baked



Outer diameter of this product is D+2T. (It is different from other rollers.)

Part Number Type	D	Urethane Thickness T	dH8 Selection	L Selection	d1	D1	B
Core Only ROLLA	30	3	8	100 150 200 250 300 350 400 450 500	15	22	10
			10				
			12				
			15				
			20				
	40	5	15		17	33	
			20				
			25				
			30				
			35				
Urethane Baked ROLAU ROLAG	50	10	15	100 150 200 250 300 350 400 450 500	17	40	10
			20				
			25				
			30				
			35				
	60	10	20		22	45	
			25				
			30				
			35				
			40				
80	10	25	32	55			
		30					
		35					
		40					
		45					

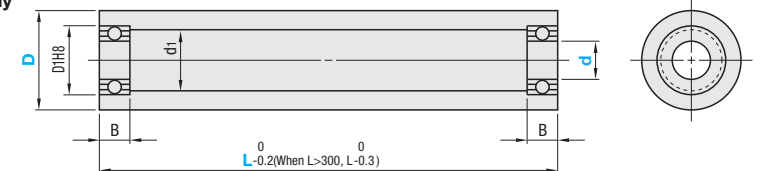
Bearing Type

RoHS

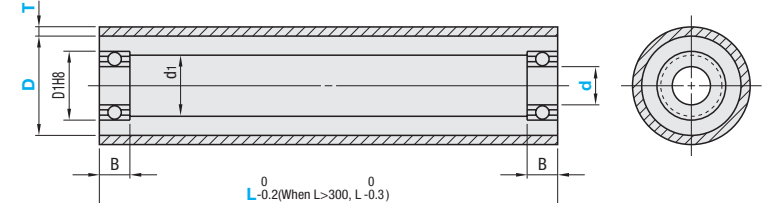
Type	Material Core	Bearing	Surface Treatment (Lining)	Hardness
RORLA	EN AW-5052/AlMg2,5	Steel	Clear Anodize	-
RORLAU			Urethane (Natural Color)	Shore A90
RORLAG				Shore A70
RORLAH				Shore A50
RORLM	1.0480/H240LA		Electroless Nickel Plating	-
RORLS	1.4301/X5CrNi18-10			-

Surface treatment is not applied to the shaft ends and inner diameter.
Urethane is baked on the outer circumference of the core material.

Core Only



Urethane Baked



Bearings can be detached. Temporarily attached with tape for shipping. Outer diameter of this product is D+2T. (It is different from other rollers.)

Part Number Type	D	Urethane Thickness T	d	L Selection	Bearing	D1	B	d1	
								Aluminum (EN AW-5052/AlMg2,5)	Steel (1.0480/H240LA) Stainless Steel (1.4301/X5CrNi18-10)
Core Only RORLA RORLAU RORLS	30	3	8	100 150 200 250 300 350 400 450 500	B698ZZ	19	6	15.8 (18)	
			*8A						
			B608ZZ		22	7			
			B690ZZ		22	6			
			B6901ZZ		24	6			
	40	5	10		B6902ZZ	22	6		
			12		B6901ZZ	24	6		
			15		B6902ZZ	28	7		
			20		B628ZZ	24	8		
			25		B600ZZ	26	8		
Urethane Baked RORLAU RORLAG RORLAH	50	10	12	100 150 200 250 300 350 400 450 500	B6901ZZ	24	6	18.1 (18)	
			15		B6902ZZ	28	7		
			20		B628ZZ	24	8		
			25		B600ZZ	26	8		
			30		B6901ZZ	24	6		
	60	10	12		B6902ZZ	28	7		22.7 (22)
			15		B6804ZZ	32	7		
			20		B6200ZZ	30	9		
			25		B6001ZZ	28	8		
			30		B6902ZZ	28	7		
80	10	15	B6904ZZ	37	9	30 (28)			
		20	B6905ZZ	42	9				
		25	B6201ZZ	32	10				
		30	B6002ZZ	32	9				
		35	B6904ZZ	37	9				

** The end faces are added relief so to avoid contact with the bearing inner ring. For detailed bearing dimensions, please see P907.
* D30 - d8A is only available in Steel Type and Stainless Steel Type. For applicable sizes, please check the price list.

Order Example: Part Number - T - d - L - Alterations
 RORLA50 - T10 - 20 - L300
 RORLAU60 - T10 - 20 - L400

Days to Ship: 10 Days (RORLA / RORLM / RORLS), 13 Days (RORLAU / RORLAG / RORLAH)

Price: Volume Discount (Round down to one Cent.) P87
 Quantity 1-9, Rate 10-15, 5%
 For RORLAG and RORLAH, the unit prices in the table are to be multiplied by factor (x1.1). (Round down to one Cent.)

Alteration: L Dimension Modification
 Ordering Code: LC151 (Change L to LC)
 LC=1mm Increment
 50:LC<490
 Only Applicable for Core Type

Order Example: Part Number - T - d - L
 ROLLA50 - T - 20 - L300
 ROLAU60 - T10 - 20 - L400

Days to Ship: -ROLLA 10 Days, -ROLAU / ROLAG 13 Days

Price: Volume Discount (Round down to one Cent.) P87
 Quantity 1-9, Rate 10-15, 5%
 For orders larger than indicated quantity, please request a quotation.

The prices of ROLAG are the unit price shown in the table multiplied by 1.1. (Round down to the ten Cent.)

Type	D	€ Unit Price								
		L100	L150	L200	L250	L300	L350	L400	L450	L500
ROLLA	30									
	40									
	50									
	60									
	80									

		€ Unit Price								
		ROLAU (€ Unit Price x 1.0)				ROLAG (€ Unit Price x 1.1)				
D	T	L100	L150	L200	L250	L300	L350	L400	L450	L500
30	3									
40										
50										
60										
80										
30	5									
40										
50										
60										
80										
30	10									
40										
50										
60										
80										

Urethane may discolor over time, but there is no effect on physical properties.

		€ Unit Price								
Type	D	L100	L150	L200	L250	L300	L350	L400	L450	L500
RORLA (Aluminum)	30									
	35									
	40									
	50									
	60									
RORLM (Steel)	30									
	35									
	40									
	50									
	80									
RORLS (Stainless Steel)	30									
	35									
	40									
	50									
	80									

		€ Unit Price																	
		ROLAU (€ Unit Price x 1.0)				RORLA (€ Unit Price x 1.1)				ROR (€ Unit Price x 1.1)									
D	T	L100	L150	L200	L250	L300	L350	L400	L450	L500	L100	L150	L200	L250	L300	L350	L400	L450	L500
30	3																		
		40																	
		50																	
		60																	
		80																	
40	5																		
		50																	
		60																	
		80																	
		80																	
60	10																		
		60																	
		80																	
		80																	
		80																	

Urethane may discolor over time, but there is no effect on physical properties.



Hollow Rollers

-Set Screw Type (L=100 ~ 500)-

Price Reduction
8%

CAD Data

Drawn aluminum pipes are used. Lightweight and reasonably priced.

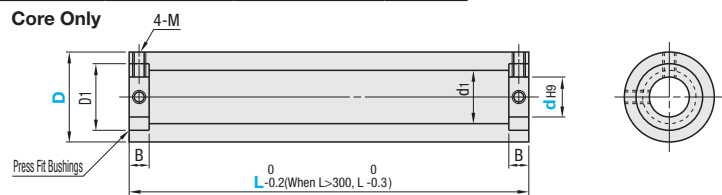
Set Screw Type

RoHS

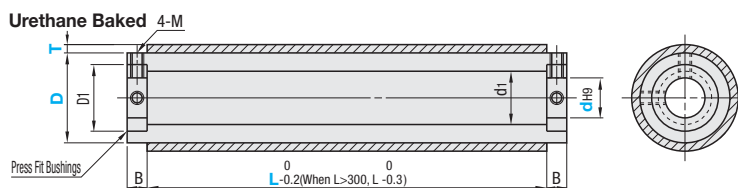
Type	Material Core	Surface Treatment (Lining)	Hardness
ROLNLA	EN AW-5052/AlMg2,5	Clear Anodize	-
ROLNAU		Urethane (Natural Color)	Shore A90
ROLNAG		Urethane (Natural Color)	Shore A70
ROLNAH	1.0480/H240LA	Electroless Nickel Plating	Shore A50
ROLNLM	1.4301/X5CrNi18-10	-	-
ROLNLS		-	-

Surface treatment may not be applied to shaft end and inner diameter.
Urethane is baked on the outer circumference of the core material.

Core Only



Urethane Baked



Outer diameter of this product is D+2T. (It is different from other rollers.)

Part Number	Type	D	Urethane Thickness T	dH9 Selection	L Selection	d1		D1	B	M	
						Aluminum (EN AW-5052/AlMg2,5)	Steel (1.0480/H240LA) Stainless Steel (1.4301/X5CrNi18-10)				
Core Only ROLNLA ROLNLM ROLNLS	30	30	3	8	100 150 200 250 300 350 400 450 500	15.8	22	22	10	M4	
				10		18.1	27				
				12		22.7	33				
				15		22.7 (22)	40				
				20		30	45				
				25		41	55				
	Thermally Bonded Urethane ROLNAU ROLNAG ROLNAH	35	35	10		12	27	33	40	15	M6
						15	32	45			
						20	41	55			
						25	41	55			
						30	41	55			
						35	41	55			
*100	100	100	10	30	76	85	20	20	M8		
				35	76	85					
				40	76	85					
				40	76	85					
				40	76	85					
				40	76	85					

Sizes marked with * are not available for urethane baked type.

Order Example	Part Number	T	d	L
ROLNLA50	20	300		
ROLNLM30	8	350		
ROLNAU60	10	20	400	

Alterations	Part Number	T	d	L(LC)
	ROLNA30	12	LC315	

Days to Ship	Part Number	T	d	L
10 Days	ROLNLA / ROLNLM / ROLNLS			
13 Days	ROLNAU / ROLNAG / ROLNAH			

Price	Quantity	1-9	10-15
Rate	€ Unit Price		5%

For ROLNAG and ROLNAH, the unit prices in the table are multiplied by factor (x1.1).

Type	D	€ Unit Price				
		L100	L150	L200	L250	L300
ROLNLA (Aluminum)	30					
	35					
	40					
	50					
	60					
	80					
ROLNLM (Steel)	30					
	35					
	40					
	50					
	60					
	80					
ROLNLS (Stainless Steel)	30					
	35					
	40					
	50					
	60					
	80					

D	T	€ Unit Price				
		ROLNAU (€ Unit Price x 1.0)	ROLNAG (€ Unit Price x 1.1)	ROLNAH (€ Unit Price x 1.1)	L100	L150
30	3					
40	5					
50	10					

Urethane may discolor over time, but there is no effect on physical properties.

Long Hollow Rollers

-Set Screw Type / Bearing Type (L=550 ~ 1000mm)-

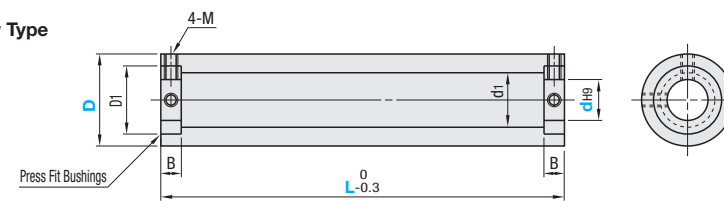
CAD Data

JIS STKM material resists bending.

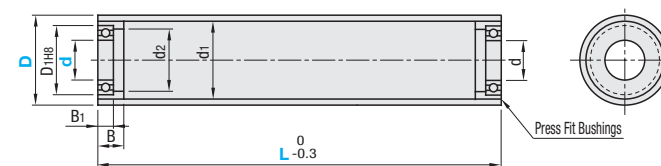
RoHS

Type	Material Core	Surface Treatment	Bearing
Set Screw Type	ROLNT	1.0480/H240LA (1.1158/C25E)	-
Bearing Type	RORC	Electroless Nickel Plating	Steel

Set Screw Type



Bearing Type



Bearings can be detached. Temporarily attached with tape for shipping.

Set Screw Type

Part Number	Type	D	dH9 Selection	L Selection	d1	D1	B	M
ROLNT	50	50	15	550	40	43	10	M6
			20	600	49.5	53		
			25	650				
			30	700				
			35	750				
			40	800				
	60	60	25	850			68.6	72
			30	900				
			35	950				
			40	1000				
			45	1000				
			50	1000				

Bearing Type

Part Number	Type	D	d Selection	L Selection	D1	B1	B	d1	d2	Bearing	
RORC	50	50	10	550	30	9	15	17	17	B6200ZZ	
			12	600	28	8		22	B6001ZZ		
			15	650	32	10		49.5	22		
			20	700							
			25	750	52	15		20	68.6	41	
			30	800							
	60	60	60	15	850	55	13	20	68.6	41	B6205ZZ
				20	900						
				25	950						
				30	1000						
				35	1000						
				40	1000						

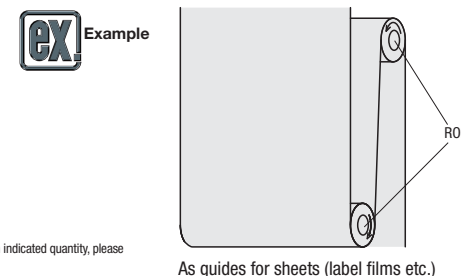
For details bearing dimensions, P87

Order Example	Part Number	d	L
	ROLNT80	25	L700
	RORC60	15	L600

Days to Ship	10 Days
--------------	---------

Price	Quantity	1-9	10-15
Rate	€ Unit Price		5%

For orders larger than indicated quantity, please request a quotation.



As guides for sheets (label films etc.)

Set Screw Type

Type	D	€ Unit Price									
		L550	L600	L650	L700	L750	L800	L850	L900	L950	L1000
ROLNT	50										
	60										
	80										

Bearing Type

Type	D	€ Unit Price									
		L550	L600	L650	L700	L750	L800	L850	L900	L950	L1000
RORC	50										
	60										
	80										



Rollers

-Straight Type with Keyway-

CAD Data

Features: 10th business day shipping is available for shaft bore with keyway machining and urethane lining.

RoHS

L Dimension Selectable		Urethane Thickness Selectable Type		Material	Lining	Hardness
Straight	Female Thread	Straight	Female Thread			
ROUSK	ROUSKN	ROEUSK	ROEUAKN	1.4301/X5CrNi18-10	Urethane (Natural Color)	Shore A90
ROUAK	ROUAKN	ROEUAK	ROEUAKN	EN AW-5052/AlMg2.5		Shore A70
ROGSK	-	ROEGSK	-	1.4301/X5CrNi18-10		Shore A50
ROGAK	-	ROEGAK	-	EN AW-5052/AlMg2.5		
ROHSK	-	ROEHSK	-	1.4301/X5CrNi18-10		
ROHAK	-	ROEHAK	-	EN AW-5052/AlMg2.5		

Ⓜ Urethane is baked on the outer circumference of the core material.

When L<dx3, hole d is machined from the same direction.
When L>dx3, hole d is machined from both ends as shown below. There may be no relief in some cases.

Keyway Dimensions

Shaft Hole Dia. d	Ref. Dim.	Tolerance (JS9)	Ref. Dim.	Tolerance (JS9)
8				
10	3	±0.0125	1.4	+0.1 0
12	4		1.8	
15	5	±0.0150	2.3	
20	6		2.8	
25				+0.2 0
30	8	±0.0180	3.3	

L Dimension Selectable		dH7 Selection		L Selection					T	M				
Type	Part Number	D		10mm Increment	15	20	25	30	40	50				
Straight ROUSK ROUAK ROGSK ROHAK	Female Thread ROUSKN ROUAKN	20	8		15	20	25	30	40	50	3	3		
		25	8	10	12	15	15	20	25	30			40	50
		30	8	10	12	15	15	20	25	30			40	50
		35		10	12	15	20	20	25	30		40	50	4
		40		10	12	15	20	20	25	30		40	50	
		50		12	15	20	25	25	30	40		50		

Urethane Thickness Selectable Type		dH7 Selection		L Selection		T	M	
Type	Part Number	D		10mm Increment		Selection		
Straight ROEUSK ROEUAK ROEGAK ROEHAK	Female Thread ROEUSKN ROEUAKN	50	10	12	15	30~100	5	
		60		12	15			20
		80		15	20			25
		100		20	25			30

D	L	€ Unit Price					
		Straight - Female Thread (For Female Thread Type, add 2,00 EUR to the prices shown below.)					
		ROUSK (ROUSKN)	ROUAK (ROUAKN)	ROGSK	ROHSK	ROGAK	ROHAK
20	15-25						
	30-50						
25	15-25						
	30-50						
30	15-25						
	30-50						
35	20-25						
	30-50						
40	20-25						
	30-50						
50	25						
	30-50						

D	L	€ Unit Price				
		Straight - Female Thread (For Female Thread Type, add 2,00 EUR to the prices shown below.)				
		ROEUSK (ROEUSKN)	ROEUAK (ROEUAKN)	ROEGSK	ROEGAK	ROEHAK
50	30-50					
	60-100					
60	30-50					
	60-100					
80	30-50					
	60-100					
100	30-50					
	60-100					

Urethane may discolor over time, but there is no effect on physical properties.

Order Example

Part Number - d - L - T

ROUSK20 - 8 - 30

ROEUSK80 - 20 - 50 - T5

Days to Ship 10 Days

Price

- L Dimension Selectable Type

Volume Discount (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%

For orders larger than indicated quantity, please request a quotation.

-Urethane Thickness Selectable Type

Volume Discount (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%

For orders larger than indicated quantity, please request a quotation.

Alterations

Part Number - d - L - T - (UDC / LC)

ROUSK20 - 8 - 30 - UDC

ROEUSK80 - 20 - 50 - T5 - UDC

ROUAK30 - 10 - 30 - LC29

Alterations	Code	Spec.	Price Adder
Antistatic Urethane (Urethane Color: Gray)	UDC	Urethane Shore A90 (ROUSN, ROEUSN, ROUAN and ROEUAN) is changed to antistatic urethane. Ordering Code UDC Specific Volume Resistivity 2.1x10 ¹⁰ Ω·cm Surface Resistivity 40x10 ⁹ Ω·cm (Temperature 30°C/Humidity 60%)	4,00
L Dimension Modification	LC	Ordering Code LC11 LC=1mm Increment L<LC≤45 Only applicable for L dimension selectable types	3,00

Hollow Rollers with Shafts (L Dimension up to 800mm)

-Straight / Both Ends Female Thread / Both Ends Retaining Ring Groove Type-

Price Reduction 16%

CAD Data

Features: With factory mounted shafts and ready to use out-of-box.

RoHS

Straight Type ROLJ

Both Ends Female Thread ROLJM

Both Ends Retaining Ring Groove ROLJT

Material: 1.0480/H240LA (1.1158/C25E)

Surface Treatment: Electroless Nickel Plating

Part Number	Type	D	d ₆ Selection	L	E / F	M (Coarse Thread) / N (Coarse Thread) Selection	P / S	1mm Increment	d ₁	D ₁	B	t	Tolerance	d ₂	Tolerance	Applicable Retaining Ring	
																	10mm Increment
ROLJ	50	15	20	100~800	5-45	5 6	5≤P<E-5 5≤S<F-5	40	43	25	1.15	1.35	14.3	0	-0.11	JIS C Type 15	
																19	JIS C Type 20
																23.9	JIS C Type 25
																19	JIS C Type 20
																23.9	JIS C Type 25
																28.6	JIS C Type 30
ROLJM	60	20	25	100~800	5-75	5 6 8 10 12 16	5≤P<E-5 5≤S<F-5	49.5	53	30	1.35	1.65	23.9	0	-0.21	JIS C Type 25	
																28.6	JIS C Type 30
																23.9	JIS C Type 25
																28.6	JIS C Type 30
																23.9	JIS C Type 25
																28.6	JIS C Type 30
ROLJT	80	25	35	100~800	5-100	8 10 12 16 20 24	5≤P<E-5 5≤S<F-5	68.6	72	40	1.65	1.65	28.6	0	-0.25	JIS C Type 35	
																33	JIS C Type 35

Order Example

Part Number - d - L - E - F - M - N - P - S

(Straight) ROLJ60 - 20 - 590 - E30 - F30

(Both Ends Female Thread) ROLJM80 - 30 - 720 - E20 - F42

(Both Ends Retaining Ring Groove) ROLJT50 - 25 - 850 - E40 - F42

Days to Ship 13 Days

Price

Volume Discount (Round down to one Cent.) P87

Quantity	1-9	10-12	13-15
Rate	€ Unit Price	5%	10%

For orders larger than indicated quantity, please request a quotation.

Part Number	Type	D	€ Unit Price													
			L100 ~150	L160 ~200	L210 ~250	L260 ~300	L310 ~350	L360 ~400	L410 ~450	L460 ~500	L510 ~550	L560 ~600	L610 ~650	L660 ~700	L710 ~750	L760 ~800
ROLJ	50	50														
		60														
		80														

Part Number	Type	D	€ Unit Price													
			L100 ~150	L160 ~200	L210 ~250	L260 ~300	L310 ~350	L360 ~400	L410 ~450	L460 ~500	L510 ~550	L560 ~600	L610 ~650	L660 ~700	L710 ~750	L760 ~800
ROLJM	50	50														
		60														
		80														

Part Number	Type	D	€ Unit Price													
			L100 ~150	L160 ~200	L210 ~250	L260 ~300	L310 ~350	L360 ~400	L410 ~450	L460 ~500	L510 ~550	L560 ~600	L610 ~650	L660 ~700	L710 ~750	L760 ~800
ROLJT	50	50														
		60														
		80														



Urethane Rollers with Collars / Knurled Urethane Rollers

-Set Screw Type-

CAD Data

Urethane Rollers with Collars RoHS

Type	Material		Hardness
	Core	Lining	
UMC	EN	Urethane	Shore A90
UMCM	AW-5052/	(Natural Color)	Shore A70
UMCL	AlMg2,5		Shore A50

Urethane is baked on the outer circumference of the core material.

Example: Secure the roller to the shaft with loctite adhesive.

Part Number Type	D	d Selection					L Selection					t				
		3	4	5	6	8	5	10	15	20	25					
UMC (Shore A90)	10	3					5	10	15			2				
	12	3					5	10	15							
	13		4				5	10	15							
	15			5			5	10	15							
	16			5	6		5	10	15							
	20			5	6	8										
	25			6	8	10		10	15	20						
	30			8	10	12	15	10	15	20	25		30	40	50	3
	35			8	10	12	15	10	15	20	25		30	40	50	
	40			8	10	12	15	10	15	20	25		30	40	50	
45			8	10	12	15	10	15	20	25	30	40	50			
50			10	12	15		10	15	20	25	30	40	50			
55			10	12	15		15	20	25	30	40	50				
60			10	12	15		20	25	30	40	50					
70			12	15	20		20	25	30	40	50					
80			12	15	20		20	25	30	40	50					

D	€ Unit Price																							
	UMC					UMCM					UMCL													
	L5	L10	L15	L20	L25	L30	L40	L50	L5	L10	L15	L20	L25	L30	L40	L50	L5	L10	L15	L20	L25	L30	L40	L50
10																								
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35																								
40																								
45																								
50																								
55																								
60																								
70																								
80																								

Order Part Number - d - L Days to Ship **8 Days**

Price Volume Discount (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%

For orders larger than indicated quantity, please request a quotation.

Knurled Urethane Rollers -Set Screw Type- RoHS

Type	Material		Hardness
	Core	Lining	
UMKH	EN	Urethane	Shore A90
UMKM	AW-5052/	(Natural Color)	Shore A70
UMKL	AlMg2,5		Shore A50

Urethane is baked on the outer circumference of the core material.

Part Number Type	D	dh7		α°	# of teeth	D1		D2	W	L	l	M	€ Unit Price		
		4	5			UMKH	UMKM						UMKL		
UMKH (Shore A90)	15	4	5	10	36	8	8	10	20	5	M3				
	20	4	5	7.5	48	10	15	15	25	5	M3				
	25		6	8	6	60	12								
	30		8	10	5	72	16	20	20	35	7.5	M4			
	40		8	10	3.75	96									
UMKL (Shore A50)	50	8	10	3	120	18	22								

Order Part Number - d Days to Ship **10 Days**

Price Volume Discount (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%

For orders larger than indicated quantity, please request a quotation.



Bearing Bonded Urethane Rollers / Urethane Rollers / Knurling Urethane Rollers

-Set Screw Type-

CAD Data

Features: Economical Urethane Rollers with bearings directly adhesive bonded.

Bearing Integrated Urethane Rollers RoHS **UMJ**

Material: Bearing: Steel
Urethane Roller: Polyurethane (Natural Color)
Hardness: Shore A90

Part Number Type	D	L Selection					d	D1	dh	B	Used Bearing	€ Unit Price			
		20	30	40	50	L20						L30	L40	L50	
UMJ	20	20	30	40	50	6	15	10	5	696ZZx2					
	25	20	30	40	50	6	15	10	5	696ZZx2					
	30	20	30	40	50	8	19	15	6	698ZZx2					
	35	30	40	50		10	22	18	6	6900ZZx2					
	40	30	40	50		12	28	24	8	6001ZZx2					
	50	30	40	50		15	32	28	9	6002ZZx2					

Order Part Number - L Days to Ship **8 Days**

Price Volume Discount (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%

For orders larger than indicated quantity, please request a quotation.

-Set Screw Type- RoHS

Type	Material		Hardness
	Core	Lining	
UMHSH	1.4301/	Urethane (Natural Color)	Shore A90
UMHS	X5CrNi18-10		Shore A70
UMHSL			Shore A50

Urethane is baked on the outer circumference of the core material.

Part Number Type	No.	D	d	D1	D2	W	L	l	M	Standard € Unit Price		
										UMHSH	UMHS	UMHSL
UMHSH (Shore A90)	15	15	4	10	-	6	12	3	3			
	15-5		5									
	20	20	4	16	-	6	12	3	3			
	20-5		5									
	25	25	6	16	20	8	20	6	3			
	25-8		8									
	30	30	6	16	24	8	20	6	3			
	30-8		8									
	35	35	8	20	28	10	25	7.5	4			
	35-10		10									
	40	40	8	25	36	10	25	7.5	4			
	40-10		10									
50	50	10	30	42	10	25	7.5	4				
50-12		12										

Knurled Urethane Rollers RoHS **ULCV**

Material: Polyurethane (Natural Color)
Hardness: Shore A50

Part Number Type	D	L Selection		d Selection		α°	# of teeth	€ Unit Price			
		6	10	8	10			L6	L10	L15	L20
ULCV (Shore A50)	15	6	10	8	10	12	30				
	20		10	8	10	9	40				
	25		10	8	10	7.2	50				
	30		10	8	10	6	60				

Order Part Number - L - d Days to Ship **8 Days**

Price Volume Discount (Round down to one Cent.) P87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%


For orders larger than indicated quantity, please request a quotation.

Urethane Rollers with Shafts

-Straight Type / Both Ends Male Thread Type-

CAD Data

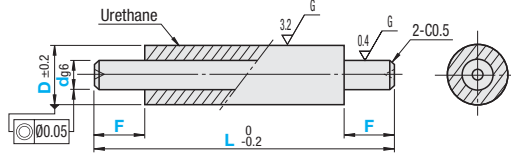
Straight Type



RoHS

Type	Material		Hardness
	Shaft	Lining	
USH	1.3505/100Cr6	Urethane	Shore A90
USM	Induction Hardening (Depth 0.8~2mm) 58HRC~	(Natural Color)	Shore A70
USL		(Natural Color)	Shore A50

Urethane is baked on the outer circumference of the core material.



Part Number Type	D	dg6 Selection	L 1mm Increment	F 1mm Increment
USH USM USL	10	5 6	50~100	5≤F≤dx2 2F<L
	15	6 8 10	50~150	
	20	8 10 12 15	50~200	
	25	10 12 15 20	50~250	
	30	15 20	50~300	
35	15 20	50~300		

Order Example: Part Number - d - L - F
USH20 - 8 - 150 - F10

Days to Ship: 10 Days

Price


Quantity	1~9	10~14	15~19	20~49
Rate	€ Unit Price	5%	10%	18%

Volume Discount (Round down to one Cent.) P87

For orders larger than indicated quantity, please request a quotation.

Part Number Type	D	L50~100	L101~150	L151~200	L201~250	L251~300
USH	10					
	15					
	20					
	25					
	30					
35						

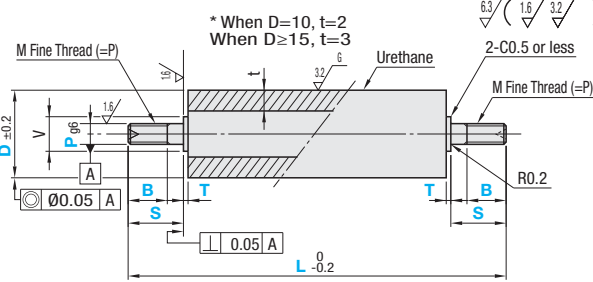
Both Ends Male Thread Type



RoHS

Type	Material		Hardness
	Shaft	Lining	
USMH	1.1191/C45E	Urethane	Shore A90
USMM		(Natural Color)	Shore A70
USML		(Natural Color)	Shore A50

Urethane is baked on the outer circumference of the core material.



* When D=10, t=2
When D≥15, t=3

Part Number Type	D	L 1mm Increment	Pg6 Selection	1mm Increment		
				S	B	T
USMH USMM USML	10	50~100	3	3≤S≤Px5	(When P≤6) B≤S-2 (When P=8, 10) B≤S-3 (When P≥12) B≤S-5	1~30
	15	50~150	3 4 5 6			
	20	50~200	4 5 6 8 10			
	25	50~250	4 5 6 8 10 12			
	30	50~300	5 6 8 10 12 15 17			
35	50~300	8 10 12 15 17 20				

See the list below, for V and M to dimension P.

P	V	M (Fine Thread)
3	5	M3xP0.35
4	6	M4xP0.5
5	7	M5xP0.5
6	8	M6xP0.75
8	10	M8xP1.0
10	13	M10xP1.0
12	15	M12xP1.0
15	17	M15xP1.0
17	20	M17xP1.0
20	24	M20xP1.0

Order Example: Part Number - L - P - S - B - T
USMH20 - 180 - P10 - S30 - B25 - T1

Days to Ship: 10 Days

Price

Quantity	1~9	10~14	15~19	20~49
Rate	€ Unit Price	5%	10%	18%

Volume Discount (Round down to one Cent.) P87

For orders larger than indicated quantity, please request a quotation.

Part Number Type	D	L50~100	L101~150	L151~200	L201~250	L251~300
USMH	10					
	15					
	20					
	25					
	30					
35						

Alterations


Part Number - d - L - F - P - S - B - T - (DKC / UDC)
USH15 - 8 - 80 - F5 - P8 - S8 - B5 - T4 - DKC
USMH20 - 120 - F5 - P8 - S8 - B5 - T4 - UDC

Alteration	Code	Spec.	Price Adder
Outer Diameter Tolerance	DKC	Changes the D dimension tolerance. D Tolerance +0.05 0 [Ordering Code] DKC	15,00
Antistatic Urethane (Urethane Color: Gray)	UDC	Changes to antistatic urethane (only USH and USMH Type). [Ordering Code] UDC Specific Volume Resistivity 2.1x10 ⁹ Ωcm Surface Resistivity 4.0x10 ⁹ Ω (Temperature 30°C/Humidity 60%)	4,00

Urethane Rollers with Shafts

-Urethane Thickness Configurable Type-

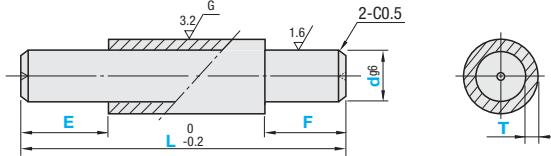
CAD Data



RoHS

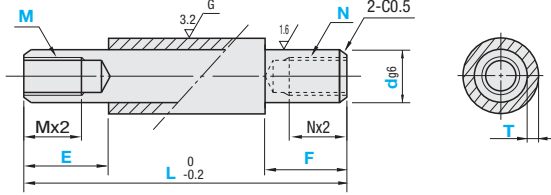
Straight

Type	Material		Hardness
	Shaft	Lining	
USRH	1.1191/C45E	Urethane	Shore A90
USRM		(Natural Color)	Shore A70
USSRH	1.4301/X5CrNi18-10	Urethane	Shore A90



Both Ends Female Thread

Type	Material		Hardness
	Shaft	Lining	
USRWH	1.1191/C45E	Urethane	Shore A90



Urethane is baked on the outer circumference of the core material.

Part Number Type	d	T 1mm Increment	L 1mm Increment	E · F 1mm Increment	Both Ends Female Thread		
					M(Coarse Thread)	N(Coarse Thread)	Selection
(Straight) USRH USRM USSRH	8	2~5	50~200	5≤E<L/2 5≤F<L/2	3	4	5
	10				4	5	6
	12				5	6	8
	15				5	6	8 10

Order Example: Part Number - T - L - E - F - M - N
(Straight) USRH10 - 2 - 195 - E10 - F10 - M5 - N6
(Both Ends Female Thread) USRWH10 - 2 - 195 - E10 - F10 - M5 - N6

Days to Ship: 10 Days

Price

Quantity	1~9	10~14	15~19	20~49
Rate	€ Unit Price	5%	10%	18%

Volume Discount (Round down to one Cent.) P87

For orders larger than indicated quantity, please request a quotation.

Straight

d	€ Unit Price														
	USRH					USRM					USSRH				
	L50~100	L101~150	L151~200	L201~250	L251~300	L50~100	L101~150	L151~200	L201~250	L251~300	L50~100	L101~150	L151~200	L201~250	L251~300
8															
10															
12															
15															

Both Ends Female Thread

d	€ Unit Price				
	USRWH				
	L50~100	L101~150	L151~200	L201~250	L251~300
8					
10					
12					
15					

Silicon Rubber / Urethane Mold Bearings

-Flat Type-

CAD Data

RoHS

Type Bearing		Material	Hardness	Color
Steel (1.3505/100Cr6)	Stainless Steel (1.4125/X105CrMo17)			
UMBB	UMSB	Urethane	Shore A90	Black
UMBW	UMSW			White
UMBG	UMSG			Black
UMBGW	UMSGW			White
UMBL	-			Black
UMBLW	-			White
UMBD	-	Antistatic Urethane	Shore A90	Gray
SUMBB	SUMSB	Silicon Rubber	Shore A70	Light Gray

RoHS

Shape A

Shape B

Bearing Accuracy JISB1514 Class 0

Ⓢ Urethane (white) may turn yellow with age.

Silicon Rubber / Urethane Mold Bearings

-Arc Type-

CAD Data

RoHS

Type Bearing		Material	Hardness	Color
Steel (1.3505/100Cr6)	Stainless Steel (1.4125/X105CrMo17)			
UMBBR	UMSBR	Urethane	Shore A90	Black
UMBWR	UMSWR			White
SUMBBR	-	Silicon Rubber	Shore A70	Light Gray

RoHS

Shape A

Shape B

Bearing Accuracy JISB1514 Class 0

Ⓢ Urethane (white) may turn yellow with age.

Shape A

Part Number	Type	d	D	Allowable Load N(kgf)				B	D ₁	r (min.)	Relative Dimension			Bearing
				Urethane		Silicon					Ds (min.)	R ₁ (max.)	R ₁ (max.)	
				Shore A90	Shore A70	Shore A50	Shore A70							
3	12	34(3.5)	10(1)	6(0.6)	9(8.1)	3	7	0.1	3.9	4.1	0.1	W683ZZA		
*4	13	44(4.5)	13(1.3)	7(0.7)	13(1.3)	4	9	0.15	5	5.2	0.2	W684AX50ZZ		
	16	59(6)	16(1.6)	6(0.6)	18(1.8)	5	13	0.2	5.6	6.2	0.2	624ZZ		
*5	20	78(8)	20(2)	9(0.9)	24(2.4)	5	16	0.3	7	7.6	0.3	625ZZ		
	28	157(16)	23(2.3)	15(1.5)	24(2.4)	5	15	0.2	7.6	7.8	0.2	696ZZ		
*6	28	157(16)	44(4.5)	39(4)	47(4.8)	6	19		8	9.5		626ZZ		
	30A	176(18)	81(8.3)	65(6.7)	53(5.4)	7	22	0.3	10	12.2	0.3	608ZZ		
*8	30A	176(18)	94(9.6)	51(5.2)	53(5.4)	8	26		12	13.5		608ZZ		
	40A	274(28)	136(13.9)	93(9.5)	82(8.4)	9	30	0.6	14	16	0.6	6000ZZ		
Antistatic Urethane	UMBD		122(12.4)	96(9.9)	82(8.4)	9	32	0.3	17	19	0.3	6002ZZ		
Silicon Rubber	SUMBB		109(11.1)	102(10.5)	103(10.5)	11	35	0.6	19	20	0.6	6202ZZ		
	45A	343(35)	130(13.3)	98(10.1)	147(15)	14	47		25	28		6204ZZ		
	55A	490(50)	225(22.9)	176(18.1)	147(15)	14	47		25	28		6204ZZ		
	65A	750(70)	333(34)	250(25.8)	226(23)	15	52		30	32		6205ZZ		

Order Example Part Number - D
UMBB10 - 30A

Days to Ship 8 Days

Express A 2,00 EUR/ piece P88
*A Express Charge of 5,40 EUR for 3 or more identical pieces.

Silicon rubber only 10 Days

Express B 2,00 EUR/ piece P88
*A Express Charge of 5,40 EUR for 3 or more identical pieces.

Volume Discount (Round down to one Cent.) P87

Quantity	1-19	20-34	35-49	50-99
Rate	€ Unit Price	5%	15%	30%

*For orders larger than indicated quantity, please request a quotation.

Alterations Part Number - D - DC
UMBB6 - 20 - DC18

Shape B

Part Number	Type	d	D	Allowable Load N(kgf)				B	D ₁	B ₁	r (min.)	Relative Dimension			Bearing
				Urethane		Silicon						Ds (min.)	R ₁ (max.)	R ₁ (max.)	
				Shore A90	Shore A70	Shore A50	Shore A70								
8	30	176(18)	81(8.3)	65(6.7)	53(5.4)	11	22	7	0.3	10	12.2	0.3	608ZZ		
	30	176(18)	94(9.6)	51(5.2)	53(5.4)	11	26	8		12	13.5		6000ZZ		
10	40	274(28)	136(13.9)	93(9.5)	82(8.4)	12	30	0.6	14	16	0.6	6200ZZ			
	40	274(28)	122(12.4)	96(9.9)	82(8.4)	12	32	9	0.3	17	19	0.3	6002ZZ		
15	45	343(35)	109(11.1)	102(10.5)	103(10.5)	15	35	11	0.6	19	20	0.6	6202ZZ		
	45	343(35)	130(13.3)	98(10.1)	103(10.5)	12	37	9	0.3	22	24	0.3	6904ZZ		
20	55	490(50)	225(22.9)	176(18.1)	147(15)	18	47	14		25	28		6204ZZ		
	65	750(70)	333(34)	250(25.8)	226(23)	19	52	15		30	32		6205ZZ		

Alteration Code Spec. Price Adder

Alteration	Code	Spec.	Price Adder
	DC	Changes the D dimension in 1mm increment. Ⓢ D1+2·DC<D-1 Ordering Code DC18	3,00

Properties of Antistatic Urethane

Item	Unit	UMBD
Specific Volume Resistivity	Ωcm	2.1x10 ⁸
Surface Resistivity	Ω	4.0x10 ⁹

Ⓢ Test Conditions (Temperature 30°C/Humidity 60%)
Ⓢ Listed values are not guaranteed values but an example of measured values.

€ Unit Price

d	D	Steel Bearing					Stainless Steel Bearing			
		Urethane (Shore A90)		Urethane (Shore A70)		Urethane (Shore A50)	Urethane (Shore A90)		Urethane (Shore A70)	Silicon Rubber (Shore A70)
		UMBB	UMBW	UMBGW	UMBL	UMBLW	UMBD	UMSB	SUMBB	UMSB
3	12									
3	13									
4	16									
4	16									
5	20									
5	20									
6	28									
6	28									
8	28									
8	30A									
10	30 / 30A									
10	40 / 40A									
15	40 / 40A									
15	45 / 45A									
20	45 / 45A									
20	55 / 55A									
25	65 / 65A									

Ⓢ D: 30A-45A are for UMBB, UMBW and UMSB only, 55A and 65A are for UMBB and UMBW only.

Shape A

Part Number	Type	d	D	Allowable Load N(kgf)		B	D ₁	r (min.)	R	Relative Dimension			Bearing		
				Urethane						Silicon		Ds (min.)		R ₁ (max.)	R ₁ (max.)
				Shore A90	Shore A70					Shore A90	Shore A70				
3	12	34(3.5)	9.8 (1)	3	7	0.1	3.9	4.1	0.1	W683ZZA					
*4	13	44(4.5)	13 (1.3)	4	9	0.15	5	5.2	0.2	W684AX50ZZ					
	16	59(6)	18 (1.8)	5	13	0.2	5.6	6.2	0.2	624ZZ					
*5	16	59(6)	18 (1.8)	5	16	0.3	6.6	6.9	0.3	WBC5-13ZZ					
	20	78(8)	24 (2.4)	5	15	0.2	7	7.6	0.3	625ZZ					
*6	20	78(8)	24 (2.4)	5	16	0.3	7.6	7.8	0.2	696ZZ					
	28	157(16)	47 (4.8)	6	19		8	9.5	0.3	626ZZ					
*8	28	157(16)	47 (4.8)	6	22	0.3	10	12.2	0.3	608ZZ					

Order Example Part Number - D
UMBBR25 - 65

Days to Ship 8 Days

Express A 2,00 EUR/ piece P88
*A Express Charge of 5,40 EUR for 3 or more identical pieces.

Silicon rubber only 10 Days

Express B 2,00 EUR/ piece P88
*A Express Charge of 5,40 EUR for 3 or more identical pieces.

Volume Discount (Round down to one Cent.) P87

Quantity	1-19	20-34	35-49	50-99
Rate	€ Unit Price	5%	15%	30%

*For orders larger than indicated quantity, please request a quotation.

Shape B

Part Number	Type	d	D	Allowable Load N(kgf)		B	D ₁	B ₁	r (min.)	R	Relative Dimension			Bearing		
				Urethane							Silicon		Ds (min.)		R ₁ (max.)	R ₁ (max.)
				Shore A90	Shore A70						Shore A90	Shore A70				
8	30	176(18)	53(5.4)	11	22	7	10	12.2	0.3	608ZZ						
	30	176(18)	53(5.4)	11	26	8	12	13.5	0.3	6000ZZ						
10	40	274(28)	82(8.4)	12	30	9	14	16	0.6	6200ZZ						
	40	274(28)	82(8.4)	12	32	9	17	19	0.3	6002ZZ						
15	45	343(35)	103(10.5)	15	35	11	19	20	0.6	6202ZZ						
	45	343(35)	103(10.5)	12	37	9	22	24	0.3	6904ZZ						
20	55	490(50)	147(15)	18	47	14	25	28		6204ZZ						
	65	750(70)	226(23)	19	52	15	30	32		6205ZZ						

Example

As work guides for conveyors

€ Unit Price

d	D	Steel Bearing		Stainless Steel Bearing
		Urethane (Shore A90)		Urethane (Shore A90)
		UMBBR	UMBWR	UMSBR
3	12			
3	13			
4	16			
4	16			
5	20			
5	20			
6	28			
6	28			
8	28			
8	30			
10	30			
10	40			
15	40			
15	45			
20	45			
20	55			
25	65			

Silicon Rubber / Urethane Mold Bearings

-Male Thread Flat Type-

CAD Data

RoHS

Type Flat Type		Material	Hardness	Color	Bearing	Shaft	
Standard	Long					Material	Surface Treatment
UMBH	UMBT	Urethane	Shore A90	Black	1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating
UMSBH	UMSBT				1.4125/X105CrMo17	1.4305/X10CrNiS18-9	-
UMBWH	UMBWT				1.3505/100Cr6	1.3505/100Cr6	Trivalent Chromate
UMSBH	UMSBT				1.4125/X105CrMo17	1.4305/X10CrNiS18-9	-
UMBGH	-	Urethane	Shore A70	Black	1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating
UMBLH	-				1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating
UMBLWH	UMBLWT				1.3505/100Cr6	1.3505/100Cr6	Trivalent Chromate
SUMBH	SUMBT	Silicon Rubber	Shore A70	Light Gray	1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating
SUMSBH	SUMSBT				1.4125/X105CrMo17	1.4305/X10CrNiS18-9	-
UMBDH	UMBDT	Antistatic Urethane	Shore A90	Gray	1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating

M Material: Steel Type: Bearing: 1.3505/100Cr6, Shaft: 1.3505/100Cr6
M Material: Stainless Steel Type: Bearing: 1.4125/X105CrMo17, Shaft: 1.4305/X10CrNiS18-9
 Bearing Accuracy JISB1514 Class 0
S Surface Treatment: Electroless Nickel Plating / Electroless Nickel Plating (UMBL_ / UMBGRH_ / UMBSR_ / UMBDR_ / UMBGWRH_ / UMBLW_ / UMBLWRH_)

① Urethane (white) may turn yellow with age.

Shape A

Part Number	Type	d	D	M (Coarse)	F		Allowable Load N(kgf)			B	D1	r (min.)	G	Bearing
					Standard	Long	Urethane	Silicon	Silicon					
Standard UMBH UMSBH UMBWH UMSBH UMBGH UMBLH UMBLWH SUMBH SUMSBH UMBDH	Long UMBT UMSBT UMBWT UMSWT UMSWG UMBLWT UMBLWT SUMBT SUMSBT UMBDT	3	12	M3	4	6	34 (3.5)	10 (1)	6 (0.6)	9.8 (1)	3	7	0.1	W683Z2A
							44 (4.5)	13 (1.3)	7 (0.7)	13 (1.3)	4	9	0.15	W684X50ZZ
							59 (6)	16 (1.6)	6 (0.6)	18 (1.8)	5	13	0.2	624ZZ
		4	16	M4	5	8	78 (8)	20 (2)	9 (0.9)	24 (2.4)	6	19	0.2	625ZZ
							23 (2.3)	15 (1.5)	15 (1.5)	15 (1.5)	5	15	0.2	696ZZ
							157 (16)	44 (4.5)	39 (4)	47 (4.8)	6	19	0.3	626ZZ
		5	20	M6	8	12	42 (4.3)	35 (3.6)	35 (3.6)	53 (5.4)	7	22	0.3	608ZZ
							81 (8.3)	65 (6.7)	65 (6.7)	65 (6.7)	8	26	0.3	608ZZ
							94 (9.6)	51 (5.2)	51 (5.2)	51 (5.2)	8	26	0.6	6000ZZ
		6	28	M10	12	20	136 (13.9)	93 (9.5)	93 (9.5)	82 (8.4)	9	30	0.3	6200ZZ
							122 (12.4)	96 (9.9)	96 (9.9)	96 (9.9)	9	32	0.3	6002ZZ
							274 (28)	109 (11.1)	102 (10.5)	103 (10.5)	11	35	0.6	6202ZZ
		7	40	M10	12	20	130 (13.3)	98 (10.1)	98 (10.1)	103 (10.5)	9	37	0.3	6904ZZ
							490 (50)	225 (22.9)	176 (18.1)	147 (15)	14	47	1	6204ZZ
							750 (70)	333 (34)	250 (25.8)	226 (23)	15	52	1	6205ZZ

① Only applicable from d4 to 8 for *marked part numbers.
 ② *D: 30A-45A are for UMBH, UMBT, UMBWH, UMBWT, UMSBH and UMSBT only, 55A and 65A are for UMBH, UMBT, UMBWH and UMBWT only.

Shape B

Part Number	Type	d	D	M (Coarse)	F		Allowable Load N(kgf)			B	D1	B1	r (min.)	G	Bearing
					Standard	Long	Urethane	Silicon	Silicon						
Standard UMBH UMSBH UMBWH UMSBH UMBGH UMBLH UMBLWH SUMBH SUMSBH UMBDH	Long UMBT UMSBT UMBWT UMSWT UMSWG UMBLWT UMBLWT SUMBT SUMSBT UMBDT	8	30	M6	8	12	81 (8.3)	65 (6.7)	65 (6.7)	53 (5.4)	11	26	8	0.3	608ZZ
							94 (9.6)	51 (5.2)	51 (5.2)	51 (5.2)	11	26	8	0.6	6000ZZ
							136 (13.9)	93 (9.5)	93 (9.5)	82 (8.4)	12	32	0.3	6002ZZ	
		9	40	M10	12	20	122 (12.4)	96 (9.9)	96 (9.9)	82 (8.4)	12	32	0.3	6002ZZ	
							274 (28)	109 (11.1)	102 (10.5)	103 (10.5)	15	35	11	0.6	6202ZZ
							343 (35)	130 (13.3)	98 (10.1)	103 (10.5)	12	37	9	0.3	6904ZZ
		10	40	M10	12	20	130 (13.3)	98 (10.1)	98 (10.1)	103 (10.5)	12	37	9	0.3	6904ZZ
							490 (50)	225 (22.9)	176 (18.1)	147 (15)	18	47	14	1	6204ZZ
							750 (70)	333 (34)	250 (25.8)	226 (23)	19	52	15	1	6205ZZ

① Allowable load is for reference.

€ Unit Price

d	D	€ Unit Price						
		Urethane (Shore A90)		Urethane (Shore A70)	Urethane (Shore A50)	Silicon Rubber (Shore A70)		Antistatic Urethane (Shore A90)
		Steel Bearing	Stainless Steel Bearing	Steel Bearing	Steel Bearing	Steel Bearing	Stainless Steel Bearing	Steel Bearing
		UMBH UMBWH UMBT UMBWT	UMSBH UMSBWH UMSBT UMSWT	UMBGH	UMBLH UMBLWH UMBLWT	SUMBH SUMBT	SUMSBH SUMSBT	UMBDH UMBDT

*D:30A - 45A is only applied to UMBH, UMBT, UMBWH, UMBWT, UMSBH and UMSBT. 55A and 65A are only applied to UMBH, UMBT, UMBWH and UMBWT.

Silicon Rubber / Urethane Mold Bearings

-Male Thread R Type-

CAD Data

RoHS

Type Crowned Type		Material	Hardness	Color	Bearing	Shaft	
Standard	Long					Material	Surface Treatment
UMBRH	UMBR	Urethane	Shore A90	Black	1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating
UMSBRH	-				1.4125/X105CrMo17	1.4305/X10CrNiS18-9	-
UMBWRH	UMBWR				1.3505/100Cr6	1.3505/100Cr6	Trivalent Chromate
UMBWRH	UMBWR				1.4125/X105CrMo17	1.4305/X10CrNiS18-9	-
UMBGRH	-	Urethane	Shore A70	Black	1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating
UMBGRH	-				1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating
UMBGRWH	-				1.3505/100Cr6	1.3505/100Cr6	Trivalent Chromate
SUMBRH	SUMBR	Silicon Rubber	Shore A70	Light Gray	1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating
SUMSBRH	SUMSBR				1.4125/X105CrMo17	1.4305/X10CrNiS18-9	-
UMBDRH	UMBDRT	Antistatic Urethane	Shore A90	Gray	1.3505/100Cr6	1.3505/100Cr6	Electroless Nickel Plating

M Material: Steel Type: Bearing: 1.3505/100Cr6, Shaft: 1.3505/100Cr6
M Material: Stainless Steel Type: Bearing: 1.4125/X105CrMo17, Shaft: 1.4305/X10CrNiS18-9
 Bearing Accuracy JISB1514 Class 0
S Surface Treatment: Electroless Nickel Plating / Electroless Nickel Plating (UMBR_ / UMBGRH_ / UMBR_ / UMBDR_ / UMBGWRH_ / UMBLW_ / UMBLWRH_)

① Urethane (white) may turn yellow with age.

Shape A

Part Number	Type	d	D	M (Coarse)	F		Allowable Load N(kgf)			B	D1	r (min.)	G	R	Bearing
					Standard	Long	Urethane	Silicon	Silicon						
Standard UMBRH UMSBRH UMBWRH UMBWRH UMBGRH UMBGRWH SUMBRH SUMSBRH UMBDRH	Long UMBR UMSBRT UMBWRT UMSWRT UMSWG UMBLWRT UMBLWRT SUMBRT SUMSBR UMBDRT	3	12	M3	4	6	34(3.5)	10(1)	9.8 (1)	3	7	0.1	1.5	W683Z2A	
							44(4.5)	13(1.3)	13(1.3)	4	9	0.15	1.5	W684X50ZZ	
							59(6)	16(1.6)	18(1.8)	5	13	0.2	5	WBC5-13ZZ	
		4	16	M4	5	8	78(8)	20(2)	16(1.6)	24(2.4)	6	19	0.2	2.5	625ZZ
							23(2.3)	15(1.5)	15(1.5)	15(1.5)	5	15	0.2	2.5	696ZZ
							157(16)	44(4.5)	39(4)	47(4.8)	6	19	0.3	2.5	626ZZ
		5	20	M6	8	12	42(4.3)	35(3.6)	35(3.6)	53(5.4)	7	22	0.3	4	608ZZ
							81(8.3)	65(6.7)	65(6.7)	65(6.7)	8	26	0.3	4	608ZZ
							94(9.6)	51(5.2)	51(5.2)	51(5.2)	8	26	0.6	4	6000ZZ
		6	28	M10	12	20	136(13.9)	93(9.5)	93(9.5)	82(8.4)	9	30	0.3	5	6200ZZ
							122(12.4)	96(9.9)	96(9.9)	96(9.9)	9	32	0.3	5	6002ZZ
							274(28)	109(11.1)	102(10.5)	103(10.5)	11	35	0.6	5	6202ZZ
		7	40	M10	12	20	130(13.3)	98(10.1)	98(10.1)	103(10.5)	9	37	0.3	8	6904ZZ
							490(50)	225(22.9)	176(18.1)	147(15)	14	47	1	8	6204ZZ
							750(70)	333(34)	250(25.8)	226(23)	15	52	1	10	6205ZZ

① Only d4-8 are available for * marked types. ② Allowable load is for reference.

Shape B

Part Number	Type	d	D	M (Coarse)	F		Allowable Load N(kgf)			B	D1	B1	r (min.)	G	R	Bearing
					Standard	Long	Urethane	Silicon	Silicon							
Standard UMBRH UMSBRH UMBWRH UMBWRH UMBGRH UMBGRWH SUMBRH SUMSBRH UMBDRH	Long UMBR UMSBRT UMBWRT UMSWRT UMSWG UMBLWRT UMBLWRT SUMBRT SUMSBR UMBDRT	8	30	M6	8	12	176 (18)	81 (8.3)	53 (5.4)	11	26	8	0.3	4	608ZZ	
							94 (9.6)	65 (6.7)	65 (6.7)	53 (5.4)	11	26	8	0.6	6000ZZ	
							136 (13.9)	93 (9.5)	93 (9.5)	82 (8.4)	12	32	0.3	5	6200ZZ	
		9	40	M10	12	20	122 (12.4)	96 (9.9)	96 (9.9)	82 (8.4)	12	32	0.3	5	15	6002ZZ
							274 (28)	109 (11.1)	102 (10.5)	103 (10.5)	15	35	11	0.6	6202ZZ	
							343 (35)	130 (13.3)	98 (10.1)	103 (10.5)	12	37	9	0.3	6904ZZ	
		10	40	M10	12	20	130 (13.3)	98 (10.1)	98 (10.1)	103 (10.5)	12	37	9	0.3	8	6904ZZ
							490 (50)	225 (22.9)	176 (18.1)	147 (15)	18	47	14	1	6204ZZ	
							750 (70)	333 (34)	250 (25.8)	226 (23)	19	52	15	1	10	6205ZZ

① Allowable load is for reference.

€ Unit Price

d	D	€ Unit Price					
		Urethane (Shore A90)		Urethane (Shore A70)	Silicon Rubber (Shore A70)	Antistatic Urethane (Shore A90)	
		Steel Bearing	Stainless Steel Bearing	Steel Bearing	Steel Bearing	Stainless Steel Bearing	Steel Bearing
		UMBRH UMBWRH UMBR UMBWRT	UMSBRH UMSWRH UMSBRT UMSWRT	UMBGRH UMBGRWH	SUMBRH SUMBRT	SUMSBRH SUMSBR	UMBDRH UMBDRT

*D:30A - 45A is only applied to UMBR, UMBRT, UMBWRH, UMBWRT, UMSBRH and UMSBRT. 55A and 65A are only applied to UMBR, UMBRT, UMBWRH and UMBWRT.

Urethane Mold Bearings

-Protruded Inner Ring Type-



CAD Data



Male Thread Bearings / Urethane Mold Bearings Shafts / Eccentric Bushings

CAD Data

Urethane Mold Bearings Inner Wheel Protruded Type (For Light Load)

Light Load
UMRW (Both Sides Protruded)
UMRV (One Side Protruded)
UMRR (No Protrusion)

Urethane Mold Bearings Inner Wheel Protruded Type (For Heavy Load)

Heavy Load
UMRHW (Both Sides Protruded)
UMRHV (One Side Protruded)

Section	Material
Tire Section	Thermoplastic Ether Type Urethane (Black, Shore A95)
Wheel Section	Thermoplastic Lactone Type Urethane (Black)
Bearing	Outer Ring, Inner Ring, Balls: 1.3505/100Cr6 Shield: Rubber

Operation Temperature Range: -20°C~40°C

Urethane Mold Bearings Inner Wheel Protruded Type (For Heavy Load)

Heavy Load
UMRHW (Both Sides Protruded)
UMRHV (One Side Protruded)

Section	Material
Tire Section	Thermosetting Ether Type Urethane (Brown, Shore A95)
Bearing	Outer Ring, Inner Ring, Balls: 1.3505/100Cr6 Shield: Steel

Operation Temperature Range: -20°C~40°C

Light Load

Part Number Type	D	d	d Tolerance			d1	B	B1	W1	W2	Allowable Load N (Reference Value)	Mass (g)			€ Unit Price		
			UMRW	UMRV	UMRR							UMRW	UMRV	UMRR	UMRW	UMRV	UMRR
UMRW (Both Sides Protruded)	20	6	0	-0.02	0	8.6	8	5	11	9.5	55	7	6	5			
	25	6	0	-0.02	0	9.3	9	6	12	10.5	79	12	11	10			
	30	6	0	-0.02	0	12	11	7	15	13	108	21	19	17			
UMRV (One Side Protruded)	35	8	0	-0.04	0	12	11	7	15	13	147	24	22	20			
	40	10	0	-0.04	0	14	12	8	16	14	196	34	32	30			
	45	12	0	-0.04	0	18.3 (16.8)	14	10	18	16	245	60	55	50			
UMRR (No Protrusion)	50	15	+0.005	-0.012	0	21.6 (20.0)	15	11	19	17	314	66	61	56			
	55	15	+0.005	-0.012	0	314	82	76	70		343	90	83	77			
	60	17	+0.005	-0.012	0	392	120	112	104		441	130	121	113			
UMRW (Both Sides Protruded)	65	20	0	-0.01	0	24.6 (23.0)	16	12	20	18	441	130	121	113			
	70	20	0	-0.01	0	29.3 (27.6)	18	14	22	20	510	188	175	164			
	80	20	0	-0.01	0	589	199	187	176		589	199	187	176			

Heavy Load

Part Number Type	D	d	d Tolerance			d1	d2	B	W1	W2	Allowable Load N (Reference Value)	Mass (g)		€ Unit Price	
			UMRHW	UMRHV	UMRHW							UMRHV			
UMRHW (Both Sides Protruded)	30	8	0	-0.04	0	12	22	11	15	13	303	24	23		
	35	8	0	-0.04	0	18	32	14	18	16	347	28	27		
	40	12	0	-0.04	0	20	35	15	19	17	474	62	59		
UMRHV (One Side Protruded)	45	15	0	-0.04	0	26	37	16	20	18	579	78	75		
	50	20	0	-0.04	0	26	37	16	20	18	660	84	82		
	55	20	+0.005	-0.012	0	27.6	47	18	22	20	794	157	151		
UMRW (Both Sides Protruded)	60	20	+0.005	-0.012	0	829	167	162			829	167	162		
	65	25	+0.005	-0.012	0	918	199	191			918	199	191		
	70	25	+0.005	-0.012	0	1050	210	202			1050	210	202		

Order Example Part Number: **UMRW40 UMRHV55**

Days to Ship 8 Days Express A 2,00 EUR/piece P.88

Price Volume Discount (Round down to one Cent.) P.87

Quantity	1-49	50-74	75-99	100-199
Rate	€ Unit Price	5%	15%	30%

Features

- As the bearing inner rings protrude, there is no need to combine stepped shafts or collars for mounting.
- The urethane part is a multi-layer structure consisting of tire section and wheel section (single layer for D20 to D35). It is economical as small diameter shafts can be used even for rollers with large external diameter.
- The bearings used have special configuration to prevent the urethane from detaching.
- Though it excels in oil resistance, applying solvents may cause swelling and reduction in strength.

Example of Combination Use

Male Thread Bearings Features: Male Thread studs are swaged-on, no extra retaining measure required.

Type	Material	Surface Treatment
Standard NTBG NTBSBG	Bearing: Steel Shaft: 1.3505/100Cr6	Shaft: Electroless Nickel Plating
Long NTBGT NTSBGT	Bearing: Stainless Steel Shaft: 1.4305X10CrNiS18-9	-

Part Number Type	D	L	B	d	a	G	M (Coarse)	Bearing	€ Unit Price					
									NTBG	NTSBG	NTBGT	NTSBGT		
Standard NTBG NTBSBG	6	4	-	2.5	3	1	1.5	M3	673ZZ					
	7	4	-	3	3				W683ZZ					
	8	5	-	2.5	5				675ZZ					
	9	5	8	4	4				W684Ax50ZZ					
	13	5	8	5	4				624ZZ					
	16	5	8	5	5				625ZZ					
	19	8	12	6	6				626ZZ					
	22	8	12	7	8				608ZZ					
	26	8	12	8	10				6000ZZ					
	30	8	12	9	10				6200ZZ					
	32	12	20	9	15				6002ZZ					
	35	12	20	11	15				6202ZZ					
Long NTBGT NTSBGT	37	12	20	9	20	2.5	8	M6	6904ZZ					
	47	12	20	14	20	3	8		6204ZZ					
	52	12	20	15	25	3	10		6205ZZ					

Shafts for Urethane Mold Bearings UWS (Steel)

Conformed to the products P.1035-1036

Part Number Type	Dg6	A	ℓ	ℓ1	V	d	M	B	(C)	Dim. m	n	Applicable Urethane Molded Bearing	€ Unit Price
UWS	3	3	-	4	2.05	+0.06	3	5	5.8	0.5	2	UMBB, UMBW, UMBGW, UMBL, UMBLW, UMBD, SUMBB, SUMSB, UMSG, UMSGW, UMSWB	3-12, 4-13, 4-16, 5-16, 5-20, 6-20, 6-28, 8-28, 8-30, 10-30, 10-40, 10-40, 15-40, 20-45, 20-55
	4	4	1	5	3.05	0	4	7	8.1	0.7	2		
	5	5	2	6.9	4.05	+0.075	5	8	9.2	0.7	2		
	6	6	3	8	5.05	0	6	10	11.5	0.7	2		
	8	8	4	12	7.1	+0.09	8	14	16.2	0.9	3		
	10	10	5	16	9.6	-0.09	10	19	21.9	1.15	3		
	15	15	6	25	19	0	12	27	31.2	1.35	4		

Order Example Part Number: **UWS312**

Days to Ship 8 Days Express A 2,00 EUR/piece P.88

Price Volume Discount (Round down to one Cent.) P.87

Quantity	1-9	10-14	15-19	20-49
Rate	€ Unit Price	5%	10%	18%

Eccentric Bushings ECCB

Part Number Type	Dg6	F	Applicable Bearing	V	B	T	e	€ Unit Price			
ECCB	6	5	696ZZ	3	10	3	0.3				
		6	606ZZ · 626ZZ								
		6	698ZZ								
	8		7	608ZZ	4			12	0.5		
			8	628ZZ							
			6	6900ZZ							
	10		8	6000ZZ	5			14	1		
			9	6200ZZ							
			6	6901ZZ							
			8	6001ZZ	6			17		1.2	
			10	6201ZZ							
12		7	6902ZZ	8	19	1.5					
		9	6002ZZ								
		11	6202ZZ								

Order Example Part Number: **ECCB10**

Days to Ship 6 Days P.88

Price Volume Discount (Round down to one Cent.) P.87

Quantity	1-19	20-34	35-49	50-99
Rate	€ Unit Price	5%	10%	18%