

Rod Ends Overview



R3550, R3553 Male plain bearing rod ends



R3551, R3554 Female plain bearing rod ends



R3556, R3559 Male ball bearing rod ends



R3557, R3560 Female ball bearing rod ends



R3562 Male roller bearing rod ends



R3563 Female roller bearing rod ends



R3565, R3577 Male Stainless Steel rod ends



R3566, R3576 Female Stainless Steel rod ends



R3570 Female low cost rod ends



R3571 Male low costs rod ends



R3579, R3582 Female plastic rod ends

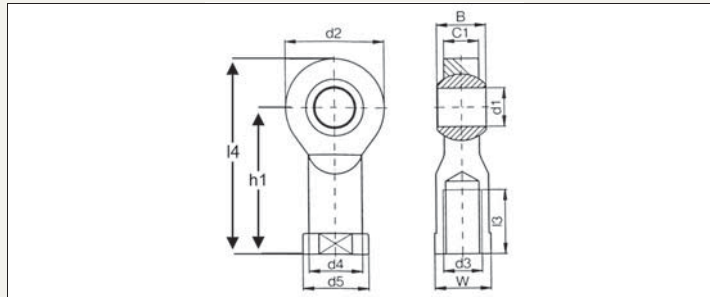


R3580, R3583 Male low cost rod ends



R3579

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Material

Housing: Igumid G plastic - Black.
Spherical bearing: Iglidor w300.

Technical Notes

Maintenance free, self lubricating High strength under impact loads.
Very high tensile strength for varying loads.
compensation for alignment errors,
compensation for edge loads. Resistant to dirt, dust and lint.

Resistant to corrosion and chemicals.

High vibration dampening capacity suitable for rotating, oscillating and linear movements.
Available with a metal sleeve to take a higher torque (Add -MS to part No.)

Standard thread is right hand thread.

Important Notes

Dimensional series K according to standard DIN ISO 12240.

*Denotes fine pitch thread.

Short term max axial strength is up to 20 minutes. Any length of time greater than this is considered long term.

To create self assembled rod ends with stud, see R3600.

Further technical data on next page.

Plastic Female Rod End

Rod Ends

Order No.	Thread (hand)	d1 E10	d2	d3	d4	d5	C1	B	h1	I3	I4
R3579.R002	Right	2	9	M2	4,0	4,6	3,0	4	12,5	6	17
R3579.R003	Right	3	13	M3	6,5	8,0	4,5	6	18,5	8	25
R3579.R004	Right	5	18	M4	9,0	12,0	6,0	8	27	10	36
R3579.R005	Right	5	18	M5	9,0	12,0	6,0	8	27	10	36
R3579.R006	Right	6	20	M6	10,0	13,0	7,0	9	30	12	40
R3579.R008	Right	8	24	M8	13,0	16,0	9,0	12	36	16	48
R3579.R010	Right	10	30	M10	15,0	19,0	10,5	14	43	20	58
R3579.R011	Right	10	30	M10 x 1,25*	15,0	19,0	10,5	14	43	20	58
R3579.R012	Right	12	34	M12	18,0	22,0	12,0	16	50	22	67
R3579.R013	Right	12	34	M12 x 1,25*	18,0	22,0	12,0	16	50	22	67
R3579.R014	Right	14	38	M14	20,0	25,0	13,5	19	57	25	76
R3579.R016	Right	16	42	M16	22,0	27,0	15,0	21	64	28	85
R3579.R017	Right	16	42	M16 x 1,5*	22,0	27,0	15,0	21	64	28	85
R3579.R018	Right	18	46	M18 x 1,5*	25,0	31,0	16,5	23	71	32	94
R3579.R020	Right	20	50	M20 x 1,5*	28,0	34,0	18,0	25	77	33	102
R3579.R021	Right	20	50	M20 x 2,5	28,0	34,0	18,0	25	77	33	102
R3579.R022	Right	22	56	M22 x 1,5*	30,0	37,0	20,0	28	84	37	112
R3579.R025	Right	25	60	M24 x 2*	32,0	41,0	22,0	31	94	42	124
R3579.R030	Right	30	70	M30 x 2*	37,0	50,0	25,0	37	110	51	145
R3579.L002	Left	2	9	M2	4,0	4,6	3,0	4	12,5	6	17
R3579.L003	Left	3	13	M3	6,5	8,0	4,5	6	18,5	8	25
R3579.L004	Left	5	18	M4	9,0	12,0	6,0	8	27	10	36
R3579.L005	Left	5	18	M5	9,0	12,0	6,0	8	27	10	36
R3579.L006	Left	6	20	M6	10,0	13,0	7,0	9	30	12	40
R3579.L008	Left	8	24	M8	13,0	16,0	9,0	12	36	16	48
R3579.L010	Left	10	30	M10	15,0	19,0	10,5	14	43	20	58
R3579.L011	Left	10	30	M10 x 1,25*	15,0	19,0	10,5	14	43	20	58
R3579.L012	Left	12	34	M12	18,0	22,0	12,0	16	50	22	67
R3579.L013	Left	12	34	M12 x 1,25*	18,0	22,0	12,0	16	50	22	67
R3579.L014	Left	14	38	M14	20,0	25,0	13,5	19	57	25	76
R3579.L016	Left	16	42	M16	22,0	27,0	15,0	21	64	28	85
R3579.L017	Left	16	42	M16 x 1,5*	22,0	27,0	15,0	21	64	28	85
R3579.L018	Left	18	46	M18 x 1,5*	25,0	31,0	16,5	23	71	32	94
R3579.L020	Left	20	50	M20 x 1,5*	28,0	34,0	18,0	25	77	33	102
R3579.L021	Left	20	50	M20 x 2,5	28,0	34,0	18,0	25	77	33	102
R3579.L022	Left	22	56	M22 x 1,5*	30,0	37,0	20,0	28	84	37	112
R3579.L025	Left	25	60	M24 x 2*	32,0	41,0	22,0	31	94	42	124
R3579.L030	Left	30	70	M30 x 2*	37,0	50,0	25,0	37	110	51	145

Order No.	W	Max. pivot angle	Max static tensile strength short term (N)	Max static tensile strength long term (N)	Max radial load short term (N)	Max radial load long term (N)	Minimum thread depth (mm)	Max torque strength inside thread	Max torque through ball Standard	Max torque through ball MH
R3579.R002	04	30°	200	200	50	25	4	0,30	1	1
R3579.R003	06	30°	800	100	400	50	5	0,50	2	4
R3579.R004	09	30°	1000	500	250	125	7	0,75	5	12
R3579.R005	09	30°	1000	500	250	125	7	1,00	5	12
R3579.R006	11	29°	1400	700	400	200	8	1,50	10	15
R3579.R008	14	25°	2100	1050	700	350	11	10,0	12	40
R3579.R010	17	25°	3100	1550	800	400	13	15,0	20	50
R3579.R011	17	25°	3100	1550	800	400	13	6,00	20	50

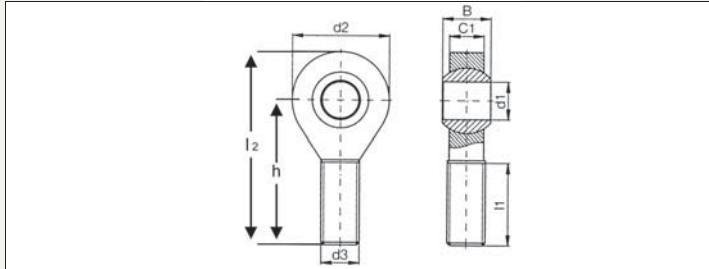
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Order No.	W	Max. pivot angle	Max static tensile strength short term (N)	Max static tensile strength long term (N)	Max radial load short term (N)	Max radial load long term (N)	Minimum thread depth (mm)	Max torque strength inside thread	Max torque through ball Standard	Max torque through ball MH
R3579.R012	19	25°	3600	1800	900	450	15	20,0	30	70
R3579.R013	19	25°	3600	1800	900	450	15	15,0	30	70
R3579.R014	22	23°	4000	2000	1000	500	17	25,0	35	75
R3579.R016	22	23°	4200	2100	1300	650	19	30,0	40	110
R3579.R017	22	23°	4200	2100	1300	650	19	27,5	40	110
R3579.R018	27	23°	4600	2300	1600	800	21	45,0	45	150
R3579.R020	30	23°	5400	2700	2100	1050	22	60,0	55	200
R3579.R021	30	23°	5400	2700	2100	1050	22	60,0	55	200
R3579.R022	32	22°	7000	3500	2200	1100	25	75,0	60	225
R3579.R025	36	22°	8500	4250	2300	1150	28	120,0	60	260
R3579.R030	41	22°	10500	5250	2500	1250	34	135,0	60	300
R3579.L002	04	30°	200	200	50	25	4	0,30	1	2
R3579.L003	06	30°	800	100	400	50	5	0,50	2	4
R3579.L004	09	30°	1000	500	250	125	7	0,75	5	12
R3579.L005	09	30°	1000	500	250	125	7	1,00	5	12
R3579.L006	11	29°	1400	700	400	200	8	1,50	10	15
R3579.L008	14	25°	2100	1050	700	350	11	10,0	12	40
R3579.L010	17	25°	3100	1550	800	400	13	15,0	20	50
R3579.L011	17	25°	3100	1550	800	400	13	6,00	20	50
R3579.L012	19	25°	3600	1800	900	450	15	20,0	30	70
R3579.L013	19	25°	3600	1800	900	450	15	15,0	30	70
R3579.L014	22	23°	4000	2000	1000	500	17	25,0	35	75
R3579.L016	22	23°	4200	2100	1300	650	19	30,0	40	110
R3579.L017	22	23°	4200	2100	1300	650	19	27,5	40	110
R3579.L018	27	23°	4600	2300	1600	800	21	45,0	45	150
R3579.L020	30	23°	5400	2700	2100	1050	22	60,0	22	200
R3579.L021	30	23°	5400	2700	2100	1050	22	60,0	55	200
R3579.L022	32	22°	7000	3500	2200	1100	25	75,0	60	225
R3579.L025	36	22°	8500	4250	2300	1150	28	120,0	60	260
R3579.L030	41	22°	10500	5250	2500	1250	34	135,0	60	300

Plastic Male Rod End

Rod Ends



R3580

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Material

Housing: Igumid G plastic - Black.
Spherical bearing: Iglidur W300.

Technical Notes

Maintenance free, self lubricating High strength under impact loads.

Very high tensile strength for varying loads.

compensation for alignment errors, compensation for edge loads. Resistant to dirt, dust and lint.

Resistant to corrosion and chemicals.

High vibration dampening capacity suitable for rotating, oscillating and linear movements.

Available with a metal sleeve to take a higher torque (Add -MS to part No.)

Standard thread is right hand thread.

Important Notes

Dimensional series K according to standard DIN ISO 12240.

*Denotes fine pitch thread.

Short term max axial strength is up to 20 minutes. Any length of time greater than this is considered long term.

To create self assembled rod ends with stud, see [R3600](#).

Further technical data on next page.

Order No.	Thread (hand)	d1 E10	d2	d3	C1	B	h	l1	l2	Max. pivot angle
R3580.R005	Right	5	18	M5	6,0	8,0	33	19	42	30°
R3580.R006	Right	6	20	M6	7,0	9,0	36	21	46	29°
R3580.R008	Right	8	24	M8	9,0	12,0	42	25	55	25°
R3580.R010	Right	10	30	M10	10,5	14,0	48	28	63	25°
R3580.R011	Right	10	30	M10 x 1,25*	10,5	14,0	48	28	63	25°
R3580.R012	Right	12	34	M12	12,0	16,0	54	32	71	25°
R3580.R013	Right	12	34	M12 x 1,25*	12,0	16,0	54	32	71	25°
R3580.R014	Right	14	38	M14	13,5	19,0	61	36	79	25°
R3580.R016	Right	16	42	M16	15,0	21,0	66	37	88	23°
R3580.R017	Right	16	42	M16 x 1,5*	15,0	21,0	66	37	88	23°
R3580.R018	Right	18	46	M18 x 1,5*	16,5	23,0	72	41	96	23°
R3580.R020	Right	20	50	M20 x 1,5*	18,0	25,0	78	45	104	23°
R3580.R021	Right	20	50	M20 x 2,5	18,0	25,0	78	45	104	23°
R3580.R022	Right	22	56	M22 x 1,5*	20,0	28,0	84	48	112	22°
R3580.R025	Right	25	61	M24 x 2*	22,0	31,0	95	55	126	22°
R3580.R030	Right	30	71	M30 x 2*	25,0	37,0	112	66	147	22°
R3580.L005	Left	5	18	M5	6,0	8,0	33	19	42	30°
R3580.L006	Left	6	20	M6	7,0	9,0	36	21	46	29°
R3580.L008	Left	8	24	M8	9,0	12,0	42	25	55	25°
R3580.L010	Left	10	30	M10	10,5	14,0	48	28	63	25°
R3580.L011	Left	10	30	M10 x 1,25*	10,5	14,0	48	28	63	25°
R3580.L012	Left	12	34	M12	12,0	16,0	54	32	71	25°
R3580.L013	Left	12	34	M12 x 1,25*	12,0	16,0	54	32	71	25°
R3580.L014	Left	14	38	M14	13,5	19,0	61	36	79	25°
R3580.L016	Left	16	42	M16	15,0	21,0	66	37	88	23°
R3580.L017	Left	16	42	M16 x 1,5*	15,0	21,0	66	37	88	23°
R3580.L018	Left	18	46	M18 x 1,5*	16,5	23,0	72	41	96	23°
R3580.L020	Left	20	50	M20 x 1,5*	18,0	25,0	78	45	104	23°
R3580.L021	Left	20	50	M20 x 2,5	18,0	25,0	78	45	104	23°
R3580.L022	Left	22	56	M22 x 1,5*	20,0	28,0	84	48	112	22°
R3580.L025	Left	25	61	M24 x 2*	22,0	31,0	95	55	126	22°
R3580.L030	Left	30	71	M30 x 2*	25,0	37,0	112	66	147	22°

Order No.	Max. static tensile strength short term (N)	Max. static tensile strength long term (N)	Max. radial load Short term (N)	Max. radial load Long term (N)	Min. thread depth (mm)	Max torque strength outside Thread (Nm)	Max. Torque through ball Standard (Nm)	Max. Torque through ball MH (Nm)
R3580.R005	800	400	80	40	13	0,4	5	12
R3580.R006	1000	500	100	50	15	0,5	10	15
R3580.R008	1700	850	200	100	18	2,0	12	40
R3580.R010	2500	1250	300	150	20	5,0	20	50
R3580.R011	2500	1250	300	150	20	3,0	20	50
R3580.R012	2700	1350	400	200	22	6,0	30	70
R3580.R013	2700	1350	400	200	22	6,0	30	70
R3580.R014	3400	1700	700	350	25	12,0	35	75
R3580.R016	3900	1950	800	400	26	17,0	40	110
R3580.R017	3900	1950	800	400	26	17,0	40	110
R3580.R018	4200	2100	1000	500	29	20,0	45	150
R3580.R020	6000	3000	1300	650	32	25,0	55	200
R3580.R021	6000	3000	1300	650	32	25,0	55	200
R3580.R022	7200	3600	1500	750	34	25,0	60	225
R3580.R025	7500	3750	1900	950	39	45,0	65	260
R3580.R030	8800	4400	2300	1150	46	85,0	70	300
R3580.L005	800	400	80	40	13	0,4	5	12
R3580.L006	1000	500	100	50	15	0,5	10	15

Plastic Male Rod End

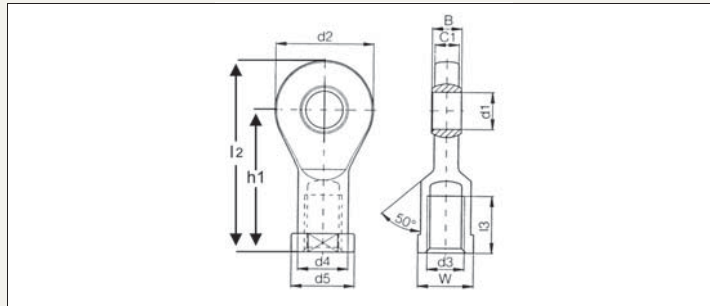
Rod Ends

Order No.	Max. static tensile strength short term (N)	Max. static tensile strength long term (N)	Max. radial load Short term (N)	Max. radial load Long term (N)	Min. thread depth (mm)	Max torque strength outside Thread (Nm)	Max. Torque through ball Standard (Nm)	Max. Torque through ball MH (Nm)
R3580.L008	1700	850	200	100	18	2,0	12	40
R3580.L010	2500	1250	300	150	20	5,0	20	50
R3580.L011	2500	1250	300	150	20	3,0	20	50
R3580.L012	2700	1350	400	200	22	6,0	30	70
R3580.L013	2700	1350	400	200	22	6,0	30	70
R3580.L014	3400	1700	700	350	25	12,0	35	75
R3580.L016	3900	1950	800	400	26	17,0	40	110
R3580.L017	3900	1950	800	400	26	17,0	40	110
R3580.L018	4200	2100	1000	500	29	20,0	45	150
R3580.L020	6000	3000	1300	650	32	25,0	55	200
R3580.L021	6000	3000	1300	650	32	25,0	55	200
R3580.L022	7200	3600	1500	750	34	25,0	60	225
R3580.L025	7500	3750	1900	950	39	45,0	65	260
R3580.L030	8800	4400	2300	1150	46	85,0	70	300



R3582

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Material

Housing: Igumid G plastic - Black
Spherical Bearing: Iglidur w300

Technical Notes

Maintenance free, self lubricating. High strength under impact loads. Very high tensile strength for varying loads compensation for alignment errors, compensation for edge loads. Resistant to dirt, dust and lint.

Resistant to corrosion and chemicals.

High vibration dampening capacity. Suitable for rotating, oscillating and linear movements. Available with a metal sleeve to take a higher torque, (add -MS to part No.)

Suitable for use with **R3409** Clevis joints.

Standard thread is right hand thread.

Important Notes

Dimensional series E.

*Denotes fine pitch thread. Short term max axial strength is up to 20 minutes. Any length of time greater than this is considered long term.

Further technical data on next page.

Plastic Female Rod End

Rod Ends

Order No.	Thread (hand)	d1 E10	d2	d3	d4	d5	C1	B	h1	I3	I4
R3582.R004	Right	4	15	M4	8,0	9,2	3,5	5	22,5	9,5	30,0
R3582.R005	Right	5	19	M5	9,0	11	4,4	6	30	12	39,5
R3582.R006	Right	6	21	M6	11,0	13	4,4	6	30	12	40,5
R3582.R008	Right	8	24	M8	13,0	16	6,0	8	36	16	48,0
R3582.R010	Right	10	29	M10	15,0	19	7,0	9	43	18	57,5
R3582.R011	Right	10	29	M10 x 1,25*	15,0	19	7,0	9	43	18	57,5
R3582.R012	Right	12	34	M12	18,0	22	8,0	10	50	20	67,0
R3582.R013	Right	12	34	M12 x 1,25*	18,0	22	8,0	10	50	20	67,0
R3582.R015	Right	15	40	M14	21,0	26	10,0	12	61	26	81,0
R3582.R016	Right	16	43	M16	-	-	10,5	13	64,5	26,5	86,0
R3582.R016-1	Right	16	43	M16 x 1,5*	-	-	10,5	13	64,5	26,5	86,0
R3582.R017	Right	17	46	M16	24,0	30	11,0	14	67	27	90,0
R3582.R018	Right	17	46	M16 x 1,5*	24,0	30	11,0	14	67	27	90,0
R3582.R020	Right	20	53	M20 x 1,5*	27,0	34	13,0	16	77	31	103,5
R3582.R021	Right	20	53	M20 x 2,5	27,0	34	13,0	16	77	31	103,5
R3582.R025	Right	25	64	M24 x 2*	34,0	41	17,0	20	94	38	126,5
R3582.R030	Right	30	73	M30 x 2*	41,0	48	19,0	22	110	47	146,5
R3582.L004	Left	4	15	M4	8,0	9,2	3,5	5	22,5	9,5	30,0
R3582.L005	Left	5	19	M5	9,0	11	4,4	6	30	12	39,5
R3582.L006	Left	6	21	M6	11,0	13	4,4	6	30	12	40,5
R3582.L008	Left	8	24	M8	13,0	16	6,0	8	36	16	48,0
R3582.L010	Left	10	29	M10	15,0	19	7,0	9	43	18	57,5
R3582.L011	Left	10	29	M10 x 1,25*	15,0	19	7,0	9	43	18	57,5
R3582.L012	Left	12	34	M12	18,0	22	8,0	10	50	20	67,0
R3582.L013	Left	12	34	M12 x 1,25*	18,0	22	8,0	10	50	20	67,0
R3582.L015	Left	15	40	M14	21,0	26	10,0	12	61	26	81,0
R3582.L016	Left	16	43	M16	-	-	10,5	13	64,5	26,5	86,0
R3582.L016-1	Left	16	43	M16 x 1,5*	-	-	10,5	13	64,5	26,5	86,0
R3582.L017	Left	17	46	M16	24,0	30	11,0	14	67	27	90,0
R3582.L018	Left	17	46	M16 x 1,5*	24,0	30	11,0	14	67	27	90,0
R3582.L020	Left	20	53	M20 x 1,5*	27,0	34	13,0	16	77	31	103,5
R3582.L021	Left	20	53	M20 x 2,5	27,0	34	13,0	16	77	31	103,5
R3582.L025	Left	25	64	M24 x 2*	34,0	41	17,0	20	94	38	126,5
R3582.L030	Left	30	73	M30 x 2*	41,0	48	19,0	22	110	47	146,5

Order No.	W	Max. pivot angle	Max static tensile strength Short term (N)	Max static tensile strength Long term (N)	Max radial load Short term (N)	Max radial load Long term (N)	Min. thread depth (mm)	Max. torque inside thread (Nm)	Max torque through ball (Nm)
R3582.R004	08	33°	800	400	100	50	7	0,4	2,0
R3582.R005	09	33°	1300	650	150	75	8	0,5	2,0
R3582.R006	11	27°	1500	750	200	100	8	1,5	2,5
R3582.R008	14	24°	2000	1000	450	225	11	5,0	7,0
R3582.R010	17	24°	2300	1150	500	250	13	15,0	14,0
R3582.R011	17	24°	2300	1150	500	250	13	6,0	14,0
R3582.R012	19	21°	3300	1650	550	275	14	20,0	25,0
R3582.R013	19	21°	3300	1650	550	275	14	15,0	25,0
R3582.R015	22	21°	4800	2400	800	400	18	25,0	30,0
R3582.R016	22	21°	5000	2500	850	425	18	20,0	32,0
R3582.R016-1	22	21°	5000	2500	850	425	18	15,0	32,0
R3582.R017	27	18°	5300	2650	1100	550	19	30,0	35,0
R3582.R018	27	18°	5300	2650	1100	550	19	27,5	35,0
R3582.R020	30	16°	7200	3600	1800	900	22	60,0	40,0
R3582.R021	30	16°	7200	3600	1800	900	22	60,0	40,0
R3582.R025	36	16°	10000	5000	2600	1300	27	115,0	55,0
R3582.R030	41	13°	10500	5250	3000	1500	33	130,0	70,0

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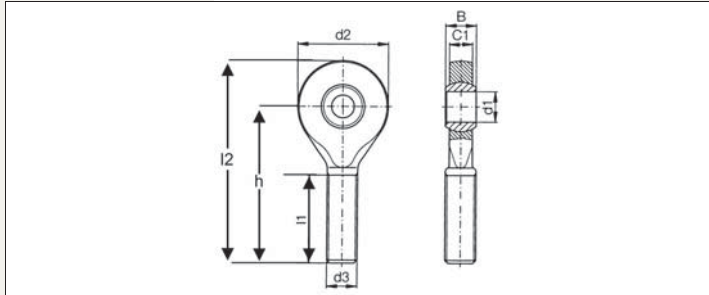
Rod Ends

Plastic Female Rod End

Order No.	W	Max. pivot angle	Max static tensile strength Short term (N)	Max static tensile strength Long term (N)	Max radial load Short term (N)	Max radial load Long term (N)	Min. thread depth (mm)	Max. torque inside thread (Nm)	Max torque through ball (Nm)
R3582.L004	08	33°	800	400	100	50	7	0,4	2,0
R3582.L005	09	33°	1300	650	150	75	8	0,5	2,0
R3582.L006	11	27°	1500	750	200	100	8	1,5	2,5
R3582.L008	14	24°	2000	1000	450	225	11	5,0	7,0
R3582.L010	17	24°	2300	1150	500	250	13	15,0	14,0
R3582.L011	17	24°	2300	1150	500	250	13	6,0	14,0
R3582.L012	19	21°	3300	1650	550	275	14	20,0	25,0
R3582.L013	19	21°	3300	1650	550	275	14	15,0	25,0
R3582.L015	22	21°	4800	2400	800	400	18	25,0	30,0
R3582.L016	22	21°	5000	2500	850	425	18	20,0	32,0
R3582.L016-1	22	21°	5000	2500	850	425	18	15,0	32,0
R3582.L017	27	18°	5300	2650	1100	550	19	30,0	35,0
R3582.L018	27	18°	5300	2650	1100	550	19	27,5	35,0
R3582.L020	30	16°	7200	3600	1800	900	22	60,0	40,0
R3582.L021	30	16°	7200	3600	1800	900	22	60,0	40,0
R3582.L025	36	16°	10000	5000	2600	1300	27	115,0	55,0
R3582.L030	41	13°	10500	5250	3000	1300	33	130,0	70,0

Plastic Male Rod End

Rod Ends



R3583

y

Material

Housing: I gumid G plastic - Black
Spherical Bearing: Iglidur w300

Technical Notes

Maintenance free, self lubricating. High strength under impact loads. Very high tensile strength for varying loads compensation for alignment errors, compensation for edge loads. Resistant to dirt, dust and lint.

Resistant to corrosion and chemicals. High vibration dampening capacity. Suitable for rotating, oscillating and linear movements.

Available with a metal sleeve to take a higher torque, (add -MS to part No.)

Suitable for use with R3409 Clevis joints.

Standard thread is right hand thread.

Important Notes

Dimensional series E.

*Denotes fine pitch thread. Short term max axial strength is up to 20 minutes. Any length of time greater than this is considered long term.

Further technical data on next page.

Order No.	Thread (hand)	d1	d2	d3	C1	B	h	l1	l2
R3583.R005	Right	5	19	M5	4,4	6	36	20	45,5
R3583.R006	Right	6	21	M6	4,4	6	36	20	46,5
R3583.R008	Right	8	24	M8	6,0	8	41	24	53,0
R3583.R010	Right	10	29	M10	7,0	9	47,5	27	62,0
R3583.R011	Right	10	29	M10 x 1,25*	7,0	9	47,5	27	62,0
R3583.R012	Right	12	34	M12	8,0	10	54	29	71,0
R3583.R013	Right	12	34	M12 x 1,25*	8,0	10	54	29	71,0
R3583.R015	Right	15	40	M14	10,0	12	63	34	83,0
R3583.R017	Right	17	46	M16	11,0	14	69	37	92,0
R3583.R018	Right	17	46	M16 x 1,5*	11,0	14	69	37	92,0
R3583.R020	Right	20	53	M20 x 1,5*	13,0	16	80	43	106,5
R3583.R021	Right	20	53	M20 x 2,5	13,0	16	80	43	106,5
R3583.R025	Right	25	64	M24 x 2*	17,0	20	97	53	129,0
R3583.R030	Right	30	73	M30 x 2*	19,0	22	113	65	149,5
R3583.L005	Left	5	19	M5	4,4	6	36	20	45,5
R3583.L006	Left	6	21	M6	4,4	6	36	20	46,5
R3583.L008	Left	8	24	M8	6,0	8	41	24	53,0
R3583.L010	Left	10	29	M10	7,0	9	47,5	27	62,0
R3583.L011	Left	10	29	M10 x 1,25*	7,0	9	47,5	27	62,0
R3583.L012	Left	12	34	M12	8,0	10	54	29	71,0
R3583.L013	Left	12	34	M12 x 1,25*	8,0	10	54	29	71,0
R3583.L015	Left	15	40	M14	10,0	12	63	34	83,0
R3583.L017	Left	17	46	M16	11,0	14	69	37	92,0
R3583.L018	Left	17	46	M16 x 1,5*	11,0	14	69	37	92,0
R3583.L020	Left	20	53	M20 x 1,5*	13,0	16	80	43	106,5
R3583.L021	Left	20	53	M20 x 2,5	13,0	16	80	43	106,5
R3583.L025	Left	25	64	M24 x 2*	17,0	20	97	53	129,0
R3583.L030	Left	30	73	M30 x 2*	19,0	22	113	65	149,5

Order No.	Max. pivot angle	Max static tensile strength Short term (N)	Max static tensile strength Long term (N)	Max radial load Short term (N)	Max radial load Long term (N)	Min. thread depth (mm)	Max torque strength outside thread (Nm)	Max torque through ball (Nm)
R3583.R005	33°	550	275	50	25	14	0,4	2,0
R3583.R006	27°	850	425	80	40	14	0,5	2,5
R3583.R008	24°	1600	800	160	80	17	2,0	7,0
R3583.R010	24°	2600	1300	250	125	19	5,0	14,0
R3583.R011	24°	2600	1300	250	125	19	3,0	14,0
R3583.R012	21°	3100	1550	300	150	20	6,0	25,0
R3583.R013	21°	3100	1550	300	150	20	6,0	25,0
R3583.R015	21°	3400	1700	600	300	24	12,5	30,0
R3583.R017	18°	3600	1800	900	450	26	17,5	35,0
R3583.R018	18°	3600	1800	900	450	26	21,0	35,0
R3583.R020	16°	6800	3400	1700	850	30	25,0	40,0
R3583.R021	16°	6800	3400	1700	850	30	25,0	40,0
R3583.R025	16°	7000	3500	1000	500	37	45,0	55,0
R3583.R030	13°	7000	3500	2000	1000	46	85,0	70,0
R3583.L005	33°	550	275	50	25	14	0,4	2,0
R3583.L006	27°	850	425	80	40	14	0,5	2,5
R3583.L008	24°	1600	800	160	80	17	2,0	7,0
R3583.L010	24°	2600	1300	250	125	19	5,0	14,0
R3583.L011	24°	2600	1300	250	125	19	3,0	14,0
R3583.L012	21°	3100	1550	300	150	20	6,0	25,0
R3583.L013	21°	3100	1550	300	150	20	6,0	25,0
R3583.L015	21°	3400	1700	600	300	24	12,5	30,0
R3583.L017	18°	3600	1800	900	450	26	17,5	35,0

Plastic Male Rod End

Rod Ends

Order No.	Max. pivot angle	Max static tensile strength Short term (N)	Max static tensile strength Long term (N)	Max radial load Short term (N)	Max radial load Long term (N)	Min. thread depth (mm)	Max torque strength outside thread (Nm)	Max torque through ball (Nm)
R3583.L018	18°	3600	1800	900	450	26	21,0	35,0
R3583.L020	16°	6800	3400	1700	850	30	25,0	40,0
R3583.L021	16°	6800	3400	1700	850	30	25,0	40,0
R3583.L025	16°	7000	3500	1000	500	37	45,0	55,0
R3583.R030	13°	7000	3500	2000	1000	46	85,0	70,0

Rod ends with integral maintenance-free spherical plain bearings R3550, R3551, R3553, R3554, R3565, R3566

In many cases heavy-duty rod ends with integrated spherical plain bearings serve their purpose. They are above all used for small swivelling or tilting movements at low speeds. They stand out for their high loadability and can also be used for shocklike loads. The rod end ball slides on a plastic bearing shell consisting of a glass fibre-filled nylon/ teflon compound. This design assures an absolutely maintenance-free rod end.

Heavy-duty plain bearing rod ends have a slight initial stress and virtually no clearance. The plastic material used has a favourable secondary advantage in that it absorbs any foreign particles and encloses them so that no damage can occur. The joint balls of heavy-duty rod ends with integrated spherical plain bearings are standardly fitted with hard chrome plating. This reliable corrosion protection ensures that the function of the rod end will not be affected by a corroded ball surface under humid operating conditions.

Rod ends with integral self-aligning ball bearings R3556, R3557, R3559, R3560

This design is especially suitable for high speeds, large swivelling angles or rotating movements with relatively low or medium loads. Prominent technical features are the low bearing friction, long-time greasing as well as the sealing against rough dirt penetration by means of shields on both sides. Under normal operating conditions the rod ends are maintenance-free.

Greasing nipples are provided for lubrication in case of rough operations and maximum loads. To avoid incompatibility with the production lubrication, we recommend lubrication with a calcium-complex-soap-grease.

A special heat treatment procedure gives the rod end housing a raceway hardness adapted to the antifriction bearing, ensuring at the same time high stability with changing loads.

Rod ends with integral self-aligning roller bearings R3562, R3563

The design based on the structure of a self-aligning roller bearing is preferably used for high speed, large tilting angles or rotating movements under high loads. Compared to rod ends with self-aligning ball bearings, rod ends with self-aligning roller bearings have essentially higher basic load ratings. This design is equipped with a cage to minimise the rolling friction and heat build-up. These rod ends with long-time lubrication are under normal operating conditions maintenance-free.

Greasing nipples are provided for lubrication in case of rough operations and maximum loads. To avoid incompatibility with the production lubrication, we recommend lubricating with a calcium-complex-soap-grease.

Shields on both sides prevent dirt particles from penetrating into the bearing. The rod ends with self-aligning roller bearings are, just as the design with the self-aligning ball bearings, subjected to a special heat treatment to obtain a raceway hardness adapted to the antifriction bearings, ensuring at the same time a high stability with changing loads.

Basic load ratings

Static basic load rating of anti-friction bearing rod ends

The static basic load rating C_0 of an antifriction bearing rod end corresponds to that of a static radial load causing a lasting overall deformation of 1/10,000 of the roller body diameter at the contact point most highly stressed between roller body and raceway.

Static basic load ratings of plain bearing rod ends

The static basic load rating C_0 of a plain bearing rod end corresponds to that of static radial load that does not

yet cause a lasting deformation at the weakest housing section. It contains at least a 1,2 fold security compared to the yield stress of the material used for the rod end housing.

Dynamic basic load rating of antifriction bearing rod ends

The dynamic basic load rating C of an antifriction bearing rod end is the external radial load, unchangeable in size and direction, at which 90% of a large quantity of obviously identical rod ends will reach or exceed 1 million of rotations or swivelling movements.

Dynamic basic load ratings of plain bearing rod ends

The dynamic basic load rating C is the parameter for the calculation of dynamically loaded maintenance-free heavy-duty rod ends with integrated spherical plain bearing, in other words, making tilting, swivelling or rotating movements under load.

Basic load ratings always depend on the definitions they are based on. For this reason it is not always possible to compare basic load rating data supplied by different manufacturers.

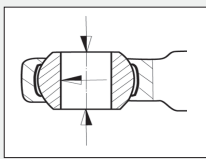


Operating temperatures

Heavy-duty antifriction bearing rod ends can be used for operating temperatures between -20°C and $+120^{\circ}\text{C}$. The temperature range of heavy-duty rod ends with integral spherical plain bearing is between -30°C and $+60^{\circ}\text{C}$, without affecting the loadability. Higher temperatures will reduce the loadability taken into account for the calculation of the 'working life' under the temperature factor C2.

Loads

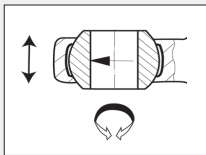
The decisive parameters for the selection and calculation of heavy-duty rod ends are size, direction and type of load.



Radial or combined loads

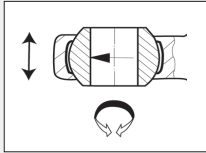
The heavy-duty rod ends have been especially designed to adopt high radial loads. They can furthermore be used for combined loads, the axial load

share of which does not exceed 20% of the corresponding radial load.



Unilaterally acting load

In this case the load acts only in the same direction, which means that the load area is always in the same bearing section.



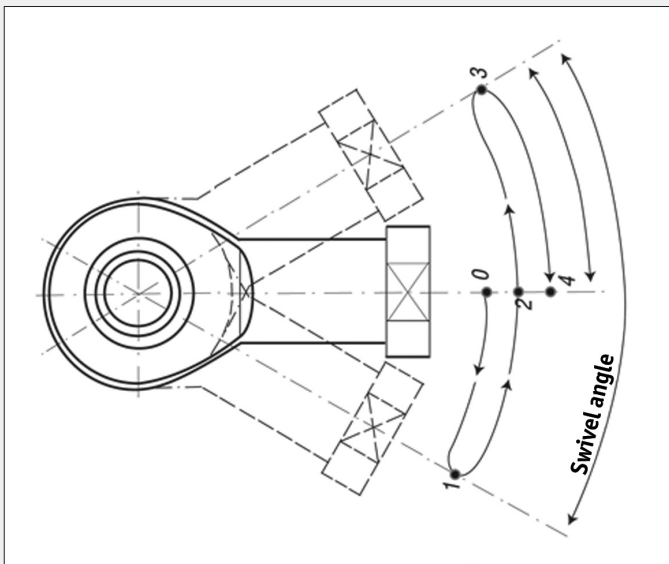
Alternately acting load

In case of alternating loads, the load areas facing each other are alternately loaded and / or relieved, which means that the load changes its direction

constantly by approximately 180° .

Swivelling angle

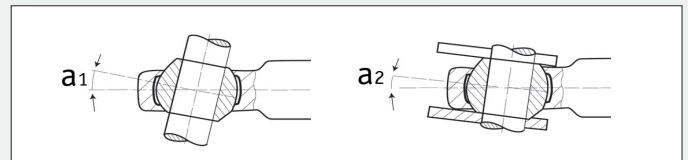
The swivelling angle is the excursion of the rod end from one final position to the other. Half the swivelling angle β is used to calculate the service or 'working life'.



Angle of tilt

The angle of tilt, also called setting angle, refers to the possible excursion of the joint ball and/ or the inner ring to the rod end axis in degrees. The tilting angle a indicated in the table for the heavy-duty antifriction bearing rod ends corresponds to the maximum possible excursion being limited by the shields on both sides. It is important that this tilting angle is not exceeded either during installation or operation, as otherwise the shields may be damaged. As far as heavy-duty plain bearing rod ends are concerned, distinction is made between the tilting angles a_1 and a_2 .

If the excursion is not limited by adjacent components, excursion angle 1 can fully be used without affecting the rod end capacity. Tilting angle a_2 is the excursion limit when connecting a forked component.



Nominal service life

The term 'nominal service life' is used for heavy-duty antifriction bearing rod ends and represents the number of swivelling motions or rotations and/ or the number of service hours the rod end performs before showing the first signs of material fatigue at the raceway or roller bodies. In view of many influence factors that are difficult or impossible to assess, the service life of several obviously identical bearings differ under the same operating conditions. For this reason, the following method for the service life determination of heavy-duty antifriction rod ends results in a nominal service life being achieved or exceeded by at least 90% of a larger quantity of identical rod ends.

Working life

The term 'working life' is used with heavy-duty plain bearing rod ends. It represents the number of swivelling motions or rotations and/ or the number of service hours the heavy-duty plain bearing rod end performs before becoming unserviceable because of material fatigue, wear, increased bearing clearance or increase of the bearing friction moment. The 'working life' is not only influenced by the size and the type of load, it is also affected by a number of factors, which are partially difficult to assess. A calculation of the exact service life is therefore impossible. Field-experienced standard values for the approximate 'working life' can nevertheless be determined by using the following calculation procedure which is based on numerous results from endurance test runs and values from decades of experience. The values determined by this formula are achieved, if not exceeded, by the majority of the heavy-duty rod ends.

Rod Ends

Technical Data/Tolerances

Heavy-duty rod ends (R3550, R3551, R3556, R3557, R3562, R3563, R3565, R3566)

d1		d1mp tolerance limit		V _{d1p}	V _{d1mp}	b1s tolerance limit		hs, h1s, h2s tolerance limit	
over	icl.	upper	lower	max.	max.	upper	lower	upper	lower
	6	+0,012	0	0,012	0,009	0	-0,12	+0,8	-1,2
6	10	+0,015	0	0,015	0,011	0	-0,12	+0,8	-1,2
10	18	+0,018	0	0,018	0,014	0	-0,12	+1,0	-1,7
18	30	+0,021	0	0,021	0,016	0	-0,12	+1,4	-2,1
30	50	+0,025	0	0,025	0,019	0	-0,12	+1,8	-2,7

Heavy-duty rod ends (R3553, R3554, R3559, R3560)

d1		d1mp tolerance limit		V _{d1p}	V _{d1mp}	b1s tolerance limit		hs, h1s, h2s tolerance limit	
over	icl.	upper	lower	max.	max.	upper	lower	upper	lower
	10	+0,002	-0,010	0,008	0,006	0	-0,12	+0,8	-1,2
10	18	+0,003	-0,011	0,008	0,006	0	-0,12	+0,8	-1,2
18	30	+0,003	-0,013	0,010	0,008	0	-0,12	+1,0	-1,7
30	50	+0,003	-0,015	0,012	0,009	0	-0,12	+1,4	-2,1
50	80	+0,004	-0,019	0,015	0,011	0	-0,15	+1,8	-2,7

Dimension and tolerance symbols

d ₁	= nominal bore diameter of the inner ring or joint ball.
d _{1mp}	= mean bore diameter deviation in one pane, arithmetical mean of the largest and smallest bore diameter.
V _{d1p}	= bore diameter variation in one plane, difference between the largest and smallest bore diameter.
V _{d1mp}	= mean bore diameter variation, difference between the largest and smallest bore diameter of one inner ring or joint ball.
b _{1s}	= single inner ring or joint ball width deviation.
h, h ₁ , h ₂	= single length from inner ring or ball bore centre to shank end.
h _s , h _{1s} , h _{2s}	= single length variation of a single rod end.

Low cost rod ends

The ultimate load capacity is based upon the minimum mechanical properties of the design configuration in the stressed area.

The ultimate radial static load capacity in the rod end specification is defined as a single cycle, unidirectional applied load will cause ultimate failure.

Operating loads should be based on the static load ratings, incorporating appropriate safety factors to suit the application.

When a rod end is to be applied in full rotation, up to a maximum of 100 RPM, the operating loads should not exceed 10% of the ultimate radial static load.

Plastic Rod Ends

Technical Data



Load

The load capacity of the maintenance free bearing element parts is very high at normal ambient temperatures. These bearings absorb high forces and weigh only one fifth of traditional, metal bearing housings. The excellent dampening properties are based on the fact that the polymer material of the two part bearing can absorb vibrations differently than steel.

However, plastic specific properties, such as dependence on temperature and behaviour under long term stress must be taken into consideration when using these bearings. The load capacity of the rod end bearing should therefore be checked in a practical test, particularly if it will be used under continuous high loads and at elevated temperatures.

Chemical resistance

The moisture absorption is approximately 1.3% of weight in standard atmosphere. The saturation limit in water is 6.5%. This must be taken into account for these types of applications. The housing made of igumid G is resistant to weak alkalines, acids and fuels, as well as all types of lubricants.

Medium	Resistance
Alcohol	+ to 0
Hydro carbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to -
Strong acids	-
Diluted alkalines	+
Strong alkalines	0

Chemical resistance of plain bearings

+ resistant **0 conditionally resistant** **- not resistant**

All data given at room temperature (20°C)

Radiation resistance

Self aligning plain bearings are resistant to radiation up to an intensity of 3×10^2 Gy.

Application temperatures

These bearings can be used in temperatures from -30°C to + 80°C. The table below shows the effect of temperature on the load capacity of the bearings.

Minimum	-30°C
Maximum, long term	+ 80°C
Maximum, short term	+ 120°C

Coefficients of sliding friction and speed

One important advantage of plastic spherical bearings is that rapid, rotary movements of a mounted shaft take place directly in the spherical portion. In metallic rod ends, rotary motion takes place between the race and the spherical bearing. High speeds can be achieved with plastic bearings. These bearings are used in such a way that the angular movements of the spherical bearings take place at the outer diameter. By contrast, rotations of the shaft are supported directly in the I.D. of the spherical portion. The advantage therefore lies in the polymer vs. steel relationship. Polymer produces lower friction and permits high speeds, even when running dry.

UV resistance

The corrosion resistance of these bearings gives them special value for outside applications. They are permanently resistant to UV radiation. A small change in colour (dark colouration) of the spherical ball due to UV radiation does not affect the mechanical electrical or thermal properties.

