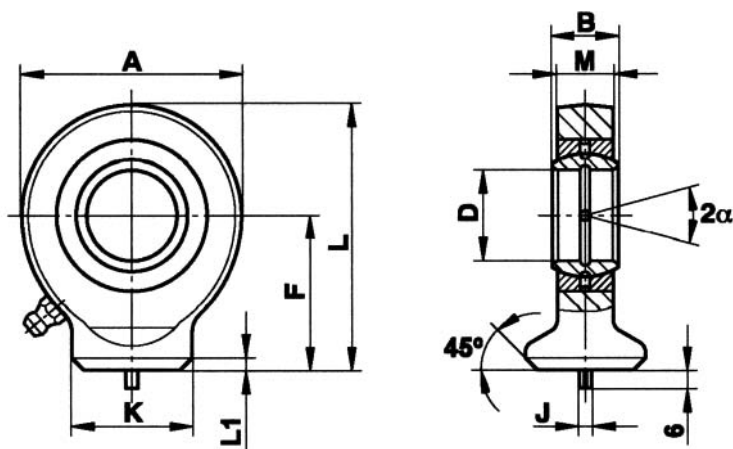


Hydraulic Rod Ends

Type E Rod End Weld-on



Series FS...C

Ametric Part Number	Size (D)	B	M	A	F	L	L1	K	J	Static load C kN	Dynamic load C kN	Pivoting angle	Weight g
FS 10 C	10	9	7	29	24	38.5	2.0	15.0	3	15.6	8.1	12	40
FS 12 C	12	10	8	34	27	44.0	2.0	17.5	3	21.6	10.8	11	65
FS 15 C	15	12	10	40	31	51.0	2.5	21.0	4	32.0	17.0	8	120
FS 17 C	17	14	11	46	35	58.0	3.0	24.0	4	40.0	21.2	10	180
FS 20 C	20	16	13	53	38	64.5	3.0	27.5	4	54.0	30.0	9	250
FS 25 C	25	20	17	64	45	77.0	4.0	33.5	4	72.0	48.0	7	450
FS 30 C	30	22	19	73	51	87.5	4.0	40.0	4	95.0	62.0	6	675
FS 35 C	35	25	21	82	61	102.0	4.0	47.0	4	125.0	80.0	6	950
FS 40 C	40	28	23	92	69	115.0	5.0	52.0	4	156.0	100.0	7	1400
FS 45 C	45	32	27	102	77	128.0	5.0	58.0	6	208.0	127.0	7	1910
FS 50 C	50	35	30	112	88	144.0	6.0	62.0	6	250.0	156.0	6	2650
FS 60 C	60	44	38	135	100	167.5	8.0	70.0	6	390.0	245.0	6	4600
FS 70 C	70	49	42	160	115	195.0	10.0	80.0	6	510.0	315.0	6	7000
FS 80 C	80	55	47	180	141	231.0	10.0	95.0	6	620.0	400.0	6	10800

For Weld-on to piston Rod Ends

Rod Ends series E to DIN ISO 12240-4, type S with circular surface for weld-on. Spherical Plain Bearings are regreasable and fixed through caulking on both sides.

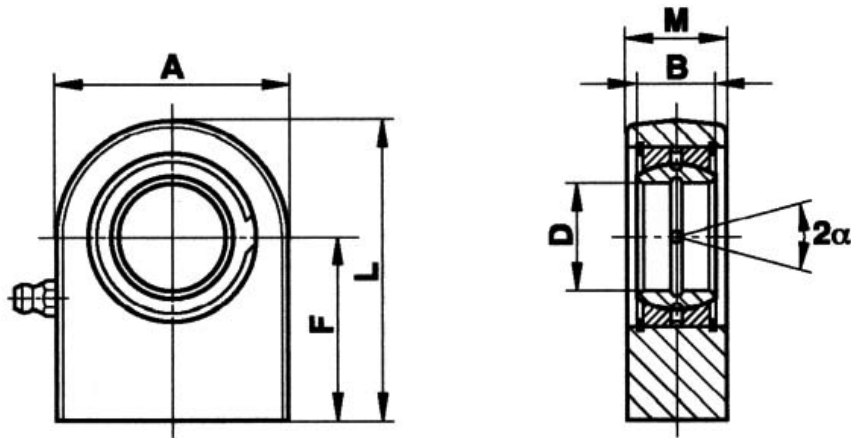
Materials:

Housing: St 52-3, forged

Bearing: Steel on steel bearing GE...E, requiring lubrication also available with bearing GE...FO or GE...LO

Greasing: up to size 12 not regreasable
 from size 16-20 fitted with grease hole in housing
 from size 25 fitted with hydraulic grease nipples to DIN 71412

Hydraulic Rod Ends Rectangular Weld-on



Series FS...N

Ametric Part Number	Size (D)	B	M	A	F	L	Static load C kN	Dynamic load C kN	Pivoting angle	Weight g
FS 20 N	20	16	19	50	38	63,0	67,0	30	9	325
FS 25 N	25	20	23	55	45	72,5	69,5	48	7	500
FS 30 N	30	22	28	65	51	83,5	118,0	62	6	825
FS 35 N	35	25	30	83	61	102,5	196,0	80	6	1475
FS 40 N	40	28	35	100	69	119,0	300,0	100	7	2480
FS 45 N	45	32	40	110	77	132,0	380,0	127	7	3450
FS 50 N	50	35	40	123	88	149,5	440,0	156	6	4450
FS 60 N	60	44	50	140	100	170,0	570,0	245	6	7130
FS 70 N	70	49	55	164	115	197,0	695,0	315	6	10700
FS 80 N	80	55	60	180	141	231,0	780,0	400	6	15100
FS 90 N	90	60	65	226	150	263,0	1340,0	490	5	23400
FS 100 N	100	70	70	250	170	295,0	1500,0	610	7	33100
FS 110 N	110	70	80	295	185	332,5	2160,0	655	6	48500
FS 120 N	120	85	90	360	210	390,0	3250,0	950	6	79500

For Weld-on to cylinder bottoms

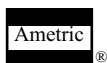
Rod Ends with rectangular surface for Weld-on. Spherical Plain Bearings are regreasable and fixed with snap rings.

Materials:

Housing: St 52-3, forged

Bearing: Steel on steel bearing GE...E, requiring lubrication

Greasing: fitted with hydraulic grease nipples to DIN 71412



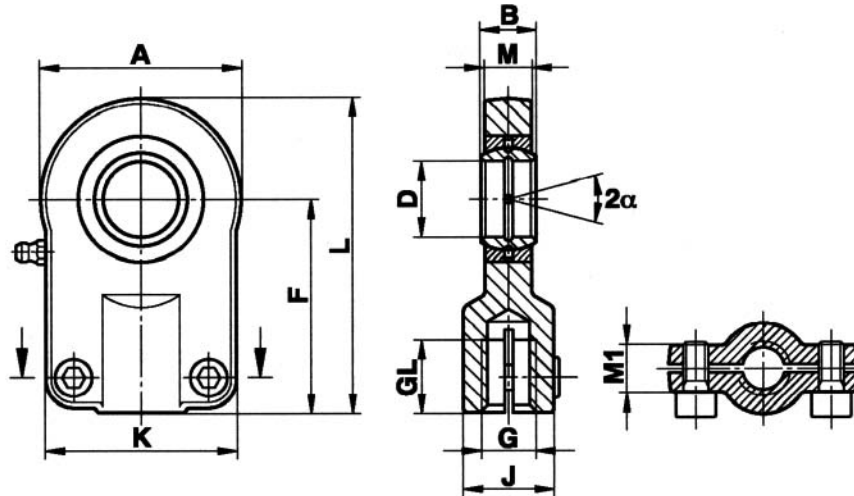
American Metric® Corporation

GROUP: 069

1-069-0723-03

Hydraulic Rod Ends

ISO 8133



Series FPR...S

Ametric Part Number	Size (D)	B	M	M1	A	F	L	K	J	G	GL	Torque Nm	Static load C kN	Dyn-amic load C	Pivot-ing	Weight g
FPR 12 S	12	10	8	13	35	42	59,5	35	17	M 10x1,25	15	10	17,0	10,8	11	150
FPR 16 S	16	14	11	13	45	48	70,5	45	21	M 12x1,25	17	10	28,5	21,1	10	250
FPR 20 S	20	16	13	17	55	58	85,5	55	25	M 14x1,5	19	25	42,5	30,0	9	430
FPR 25 S	25	20	17	17	65	68	100,5	62	30	M 16x1,5	23	25	67,0	48,0	7	730
FPR 30 S	30	22	19	19	80	85	125,0	77	36	M 20x1,5	29	49	108,0	62,0	6	1300
FPR 40 S	40	28	23	23	100	105	155,0	90	45	M 27x2	37	49	156,0	100,0	7	2300
FPR 50 S	50	35	30	30	120	130	190,0	105	55	M 33x2	46	86	245,0	156,0	6	4400
FPR 60 S	60	44	38	38	160	150	230,0	134	68	M 42x2	57	210	380,0	245,0	6	8400
FPR 80 S	80	55	47	47	205	185	287,5	156	90	M 48x2	64	410	585,0	400,0	6	15600
FPR 100 S	100	70	57	57	240	240	360,0	190	110	M 64x3	86	710	865,0	610,0	6	28000

Series FPL...S

Ametric Part Number	Size (D)	B	M	M1	A	F	L	K	J	G	GL	Torque Nm	Static load C kN	Dyn-amic load C	Pivot-ing	Weight g
FPL 12 S	12	10	8	13	35	42	59,5	35	17	M 10x1,25	15	10	17,0	10,8	11	150
FPL 16 S	16	14	11	13	45	48	70,5	45	21	M 12x1,25	17	10	28,5	21,1	10	250
FPL 20 S	20	16	13	17	55	58	85,5	55	25	M 14x1,5	19	25	42,5	30,0	9	430
FPL 25 S	25	20	17	17	65	68	100,5	62	30	M 16x1,5	23	25	67,0	48,0	7	730
FPL 30 S	30	22	19	19	80	85	125,0	77	36	M 20x1,5	29	49	108,0	62,0	6	1300
FPL 40 S	40	28	23	23	100	105	155,0	90	45	M 27x2	37	49	156,0	100,0	7	2300
FPL 50 S	50	35	30	30	120	130	190,0	105	55	M 33x2	46	86	245,0	156,0	6	4400
FPL 60 S	60	44	38	38	160	150	230,0	134	68	M 42x2	57	210	380,0	245,0	6	8400
FPL 80 S	80	55	47	47	205	185	287,5	156	90	M 48x2	64	410	585,0	400,0	6	15600
FPL 100 S	100	70	57	57	240	240	360,0	190	110	M 64x3	86	710	865,0	610,0	6	28000

For use in standard Hydraulic Cylinders 160 bar to ISO 6020/2

Rod Ends, fastened by hexagon socket head cap screw to DIN 912-12.9. Spherical Plain Bearings, regreasable, fixed through caulking on both sides

Materials:

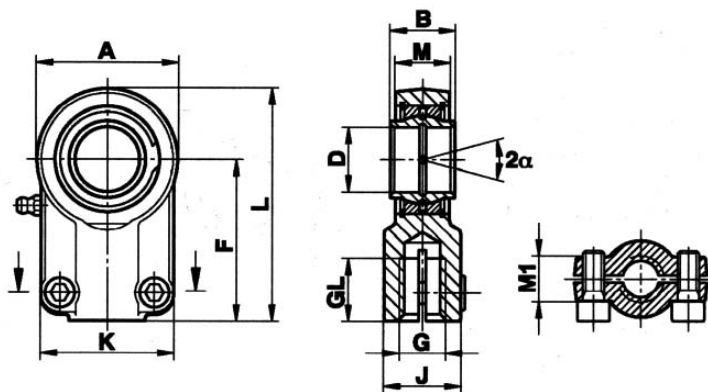
Housing: Heat-treated steel to C45, forged

Bearing: Steel on steel bearing GE...E, requiring lubrication

Greasing: Size 12 not regreasable
from size 16-20 fitted with grease hole in housing
from size 25 fitted with hydraulic grease nipples to DIN 71412

Hydraulic Rod Ends

CETOP ISO 6982



Series FPR...CE

Ametric Part Number	Size (D)	B	M	M1	A	F	L	K	J	G	GL	Torque Nm	Static load C kN	Dy-namic load C	Pivot-ing	Weight g
FPR 12 CE	12	12	11,0	15,0	32,0	38	54,0	32	16	M 12x1,25	17	6	24,5	10,8	4	100
FPR 16 CE	16	16	13,8	15,0	40,0	44	64,0	40	21	M 14x1,5	19	10	36,5	17,6	4	210
FPR 20 CE	20	20	17,8	18,7	47,0	52	75,0	47	25	M 16x1,5	23	25	48,0	30,0	4	350
FPR 25 CE	25	25	21,9	19,0	58,0	65	96,0	54	30	M 20x1,5	29	25	78,0	48,0	4	620
FPR 32 CE	32	32	27,9	22,0	71,0	80	118,5	66	38	M 27x2	37	49	114,0	67,0	4	1170
FPR 40 CE	40	40	33,0	26,0	90,0	97	146,1	80	47	M 33x2	46	49	204,0	100,0	4	2150
FPR 50 CE	50	50	41,0	32,0	109,0	120	179,6	96	58	M 42x2	57	86	310,0	156,0	4	440
FPR 63 CE	63	63	53,0	38,0	132,0	140	211,6	114	70	M 48x2	64	210	430,0	255,0	4	7600
FPR 70 CE	70	70	57,0	42,0	155,0	160	245,0	135	80	M 56x2	81	210	540,0	315,0	4	10100
FPR 80 CE	80	80	67,0	48,0	169,3	180	270,6	148	90	M 64x3	86	410	695,0	400,0	4	14500
FPR 90 CE	90	90	72,0	52,0	185,0	195	296,0	160	100	M 72x3	91	410	750,0	490,0	4	17500
FPR 100 CE	100	100	85,0	62,0	211,4	210	322,7	178	110	M 80x3	96	710	1060,0	610,0	4	28000
FPR 110 CE	110	110	88,0	62,0	235,0	235	364,0	190	125	M 90x3	106	710	1200,0	655,0	4	32000
FPR 125 CE	125	125	103,0	72,0	263,5	260	405,7	200	135	M 100x3	113	710	1430,0	950,0	4	46400
FPR 160 CE	160	160	130,0	82,0	326,0	310	488,0	250	165	M 125x4	126	710	2200,0	1370,0	4	81000
FPR 200 CE	200	200	162,0	102,0	418,0	390	620,0	320	215	M 160x4	161	1500	3650,0	2120,0	4	174000

Series FPL...CE

Ametric Part Number	Size (D)	B	M	M1	A	F	L	K	J	G	GL	Torque Nm	Static load C kN	Dy-namic load C	Pivot-ing	Weight g
FPL 12 CE	12	12	11,0	15,0	32,0	38	54,0	32	16	M 12x1,25	17	6	24,5	10,8	4	100
FPL 16 CE	16	16	13,8	15,0	40,0	44	64,0	40	21	M 14x1,5	19	10	36,5	17,6	4	210
FPL 20 CE	20	20	17,8	18,7	47,0	52	75,0	47	25	M 16x1,5	23	25	48,0	30,0	4	350
FPL 25 CE	25	25	21,9	19,0	58,0	65	96,0	54	30	M 20x1,5	29	25	78,0	48,0	4	620
FPL 32 CE	32	32	27,9	22,0	71,0	80	118,5	66	38	M 27x2	37	49	114,0	67,0	4	1170
FPL 40 CE	40	40	33,0	26,0	90,0	97	146,1	80	47	M 33x2	46	49	204,0	100,0	4	2150
FPL 50 CE	50	50	41,0	32,0	109,0	120	179,6	96	58	M 42x2	57	86	310,0	156,0	4	440
FPL 63 CE	63	63	53,0	38,0	132,0	140	211,6	114	70	M 48x2	64	210	430,0	255,0	4	7600
FPL 70 CE	70	70	57,0	42,0	155,0	160	245,0	135	80	M 56x2	81	210	540,0	315,0	4	10100
FPL 80 CE	80	80	67,0	48,0	169,3	180	270,6	148	90	M 64x3	86	410	695,0	400,0	4	14500
FPL 90 CE	90	90	72,0	52,0	185,0	195	296,0	160	100	M 72x3	91	410	750,0	490,0	4	17500
FPL 100 CE	100	100	85,0	62,0	211,4	210	322,7	178	110	M 80x3	96	710	1060,0	610,0	4	28000
FPL 110 CE	110	110	88,0	62,0	235,0	235	364,0	190	125	M 90x3	106	710	1200,0	655,0	4	32000
FPL 125 CE	125	125	103,0	72,0	263,5	260	405,7	200	135	M 100x3	113	710	1430,0	950,0	4	46400
FPL 160 CE	160	160	130,0	82,0	326,0	310	488,0	250	165	M 125x4	126	710	2200,0	1370,0	4	81000
FPL 200 CE	200	200	162,0	102,0	418,0	390	620,0	320	215	M 160x4	161	1500	3650,0	2120,0	4	174000

Mounting dimensions to DIN 24333-24336 and ISO 6020/1, ISO 6022

Rod Ends Cetop, recommendation RP 58H for standard Hydraulic Cylinders, fastened by hexagon socket head cap screws to DIN 912-12.9. Spherical Plain Bearings, regreasable, fixed with snap rings.

Materials:

Housing: Heat-treated steel to C45, forged

Bearing: Steel on steel bearing GE...LO, requiring lubrication

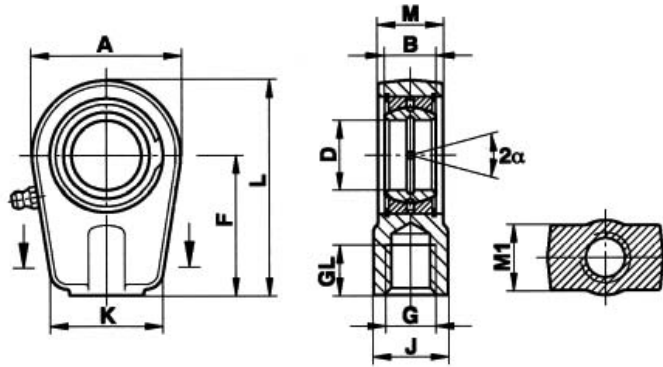
Greasing: Size 12 is not regreasable
from size 16 fitted with hydraulic grease nipples to DIN 71412

 **American Metric® Corporation**

GROUP: 069

1-069-072303

Hydraulic Rod Ends Short Thread



Series FPR...N

Ametric Part Number	Size (D)	B	M	M1	A	F	L	K	J	G	GL	Static load C kN	Dynamic load C kN	Pivoting angle	Weight g
FPR 20 N	20	16	19	21	56	50	80,0	46	25	M 16x1,5	17	72	30	9	400
FPR 25 N	25	20	23	21	56	50	80,0	46	25	M 16x1,5	17	72	48	7	475
FPR 30 N	30	22	28	26	64	60	94,0	50	32	M 22x1,5	23	106	62	6	700
FPR 35 N	35	25	30	28	78	70	112,0	66	40	M 28x1,5	29	153	80	6	1150
FPR 40 N	40	28	35	33	94	85	135,0	76	49	M 35x1,5	36	250	100	7	2075
FPR 50 N	50	35	40	37	116	105	168,0	90	61	M 45x1,5	46	365	156	6	3575
FPR 60 N	60	44	50	46	130	130	200,0	120	75	M 58x1,5	59	400	245	6	6200
FPR 70 N	70	49	55	51	154	150	232,0	130	86	M 65x1,5	66	540	315	6	9200
FPR 80 N	80	55	60	55	176	170	265,0	160	105	M 80x2	81	670	400	6	13200
FPR 90 N	90	60	65	60	206	210	323,0	180	124	M 100x2	101	980	490	5	19600
FPR 100 N	100	70	70	65	231	235	360,7	200	138	M 110x2	111	1120	610	7	26310
FPR 110 N	110	70	80	74	265	265	408,2	220	152	M 120x3	125	1700	655	6	39200
FPR 120 N	120	85	90	84	340	310	490,0	300	172	M 130x3	135	2900	950	6	78000

Series FPL...N

Ametric Part Number	Size (D)	B	M	M1	A	F	L	K	J	G	GL	Static load C kN	Dynamic load C kN	Pivoting angle	Weight g
FPL 20 N	20	16	19	21	56	50	80,0	46	25	M 16x1,5	17	72	30	9	400
FPL 25 N	25	20	23	21	56	50	80,0	46	25	M 16x1,5	17	72	48	7	475
FPL 30 N	30	22	28	26	64	60	94,0	50	32	M 22x1,5	23	106	62	6	700
FPL 35 N	35	25	30	28	78	70	112,0	66	40	M 28x1,5	29	153	80	6	1150
FPL 40 N	40	28	35	33	94	85	135,0	76	49	M 35x1,5	36	250	100	7	2075
FPL 50 N	50	35	40	37	116	105	168,0	90	61	M 45x1,5	46	365	156	6	3575
FPL 60 N	60	44	50	46	130	130	200,0	120	75	M 58x1,5	59	400	245	6	6200
FPL 70 N	70	49	55	51	154	150	232,0	130	86	M 65x1,5	66	540	315	6	9200
FPL 80 N	80	55	60	55	176	170	265,0	160	105	M 80x2	81	670	400	6	13200
FPL 90 N	90	60	65	60	206	210	323,0	180	124	M 100x2	101	980	490	5	19600
FPL 100 N	100	70	70	65	231	235	360,7	200	138	M 110x2	111	1120	610	7	26310
FPL 110 N	110	70	80	74	265	265	408,2	220	152	M 120x3	125	1700	655	6	39200
FPL 120 N	120	85	90	84	340	310	490,0	300	172	M 130x3	135	2900	950	6	78000

Mounting dimensions to DIN 24333-24336 and ISO 6020/1, ISO 6022

Rod Ends Cetop, recommendation RP 58H for standard Hydraulic Cylinders, fastened by hexagon socket head cap screws to DIN 912-12.9. Spherical Plain Bearings, regreasable, fixed with snap rings.

Materials:

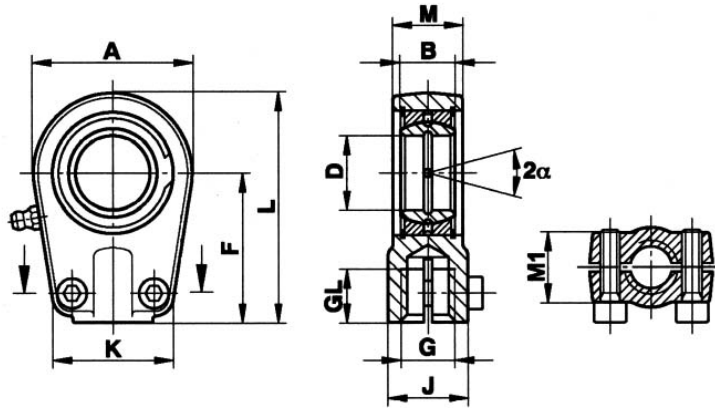
Housing: Heat-treated steel to C45, forged

Bearing: Steel on steel bearing GE...LO, requiring lubrication

Greasing: Size 12 is not regreasable
from size 16 fitted with hydraulic grease nipples to DIN 71412

Hydraulic Rod Ends

Short Thread Hexagon



Series FPR...U

Ametric Part Number	Size (D)	B	M	M1	A	F	L	K	J	G	GL	Torque Nm	Static load C kN	Dy-namic load C	Pivot-ing	Weight g
FPR 20 U	20	16	19	21	56	50	80,0	46	25	M 16x1,5	17	25	72	30	9	400
FPR 25 U	25	20	23	21	56	50	80,0	46	25	M 16x1,5	17	25	72	48	7	475
FPR 30 U	30	22	28	26	64	60	94,0	50	32	M 22x1,5	23	25	106	62	6	700
FPR 35 U	35	25	30	28	78	70	112,0	66	40	M 28x1,5	29	49	153	80	6	1150
FPR 40 U	40	28	35	33	94	85	135,0	76	49	M 35x1,5	36	49	250	100	7	2075
FPR 50 U	50	35	40	37	116	105	168,0	90	61	M 45x1,5	46	86	365	156	6	3575
FPR 60 U	60	44	50	46	130	130	200,0	120	75	M 58x1,5	59	210	400	245	6	6200
FPR 70 U	70	49	55	51	154	150	232,0	130	86	M 65x1,5	66	210	540	315	6	9200
FPR 80 U	80	55	60	55	176	170	265,0	160	105	M 80x2	81	410	670	400	6	13200
FPR 90 U	90	60	65	60	206	210	323,0	180	124	M 100x2	101	410	980	490	5	19600
FPR 100 U	100	70	70	65	231	235	360,7	200	138	M 110x2	111	710	1120	610	7	26310
FPR 110 U	110	70	80	74	265	265	408,2	220	152	M 120x3	125	710	1700	655	6	39200
FPR 120 U	120	85	90	84	340	310	490,0	300	172	M 130x3	135	710	2900	950	6	78000

Series FPL...U

Ametric Part Number	Size (D)	B	M	M1	A	F	L	K	J	G	GL	Torque Nm	Static load C kN	Dy-namic load C	Pivot-ing	Weight g
FPL 20 U	20	16	19	21	56	50	80,0	46	25	M 16x1,5	17	25	72	30	9	400
FPL 25 U	25	20	23	21	56	50	80,0	46	25	M 16x1,5	17	25	72	48	7	475
FPL 30 U	30	22	28	26	64	60	94,0	50	32	M 22x1,5	23	25	106	62	6	700
FPL 35 U	35	25	30	28	78	70	112,0	66	40	M 28x1,5	29	49	153	80	6	1150
FPL 40 U	40	28	35	33	94	85	135,0	76	49	M 35x1,5	36	49	250	100	7	2075
FPL 50 U	50	35	40	37	116	105	168,0	90	61	M 45x1,5	46	86	365	156	6	3575
FPL 60 U	60	44	50	46	130	130	200,0	120	75	M 58x1,5	59	210	400	245	6	6200
FPL 70 U	70	49	55	51	154	150	232,0	130	86	M 65x1,5	66	210	540	315	6	9200
FPL 80 U	80	55	60	55	176	170	265,0	160	105	M 80x2	81	410	670	400	6	13200
FPL 90 U	90	60	65	60	206	210	323,0	180	124	M 100x2	101	410	980	490	5	19600
FPL 100 U	100	70	70	65	231	235	360,7	200	138	M 110x2	111	710	1120	610	7	26310
FPL 110 U	110	70	80	74	265	265	408,2	220	152	M 120x3	125	710	1700	655	6	39200
FPL 120 U	120	85	90	84	340	310	490,0	300	172	M 130x3	135	710	2900	950	6	78000

Mounting dimensions to DIN 24333-24336 and ISO 6020/1, ISO 6022

Rod Ends Cetop, recommendation RP 58H for standard Hydraulic Cylinders, fastened by hexagon socket head cap screws to DIN 912-12.9. Spherical Plain Bearings, regreasable, fixed with snap rings.

Materials:

Housing: Heat-treated steel to C45, forged

Bearing: Steel on steel bearing GE...LO, requiring lubrication

Greasing: Size 12 is not regreasable
from size 16 fitted with hydraulic grease nipples to DIN 71412

Metric Hydraulic Components



- **Metric Tube Fittings**

Series L (light series): 6-42mm tube OD
Series S (heavy series): 6-38mm tube OD

Series L: up to 250 Bar (3600 psi)
Series S: up to 630 Bar (9000 psi)

- **Metric Seamless Tubing**

Material: St 37.4 (acc. DIN 1630)
Also available:
AISI 316/316 L (AISI 316 Ti upon request)

- **High Pressure Ball Valves**

Up to 800 Bar (11600 psi)
NPT, BSP, DIN 2353 and SAE-flange

- **Quick Release Couplings**

Swivel joints, check valves and throttle valves

- **Pressure Gauges**

0-1000 Bar (14500 psi)
NPT & BSPP - threads

- **Test Couplings and Hose Assemblies**

Up to 630 Bar (9135 psi)

- **Hydraulic Hose Fittings**

Up to SAE 100 R 15
3/16 - 2 inches

- **Pipe, Tube and Hose Clamps**

Up to 8 5/8 inches - tube OD
For metric or UNC - bolts

- **Machines for Tube Assemblies**

Metal circular saw
Bending machine

and more...