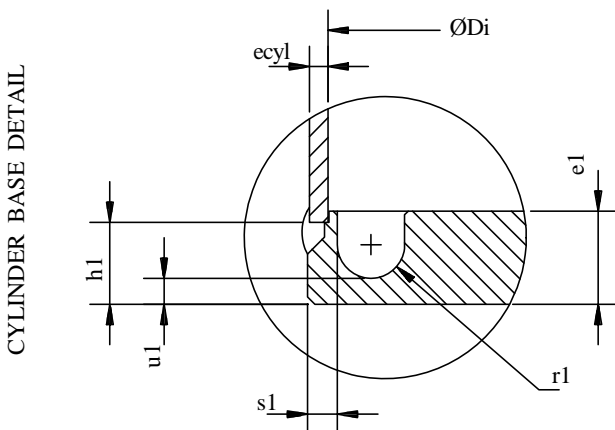


PISTON TYPE [mm]		ØD [mm]	ecyl [mm]	Ap [cm <sup>2</sup> ]	Pt4 [Kg]	Pt1 [Kg/m]	PtP [Kg]	PgS [Kg]	PgC [Kg]	ps4 [Kg]	ps1 [Kg/m]	Qt [lt/m]	qc [lt/m]	A [mm <sup>2</sup> ]	i [mm]	J [mm <sup>4</sup> ]
60	5	101.6	3.6	28.27	89	15.5	15	4	5	31	6.8	7	2.8	864	19.53	329376
70	5	101.6	3.6	38.48	94	16.7	15	6	5	36	8.0	7	3.9	1021	23.05	542415
	10	101.6	3.6	38.48	121	23.5	15	6	5	63	14.8	7	3.9	1885	21.50	871791
80	5	114.3	4	50.26	114	20.2	23	8	5.5	42	9.3	9	5.0	1178	26.58	832030
	7.5	114.3	4	50.26	131	24.3	23	8	5.5	59	13.5	9	5.0	1708	25.77	1134378
	12	114.3	4	50.26	158	31	23	8	5.5	86	20.2	9	5.0	2564	24.41	1527868
90	5	133	4.5	63.62	127	24.8	23	11.5	7	48	10.5	12	6.4	1335	30.11	1210003
	7.5	133	4.5	63.62	147	29.6	23	11.5	7	67	15.3	12	6.4	1944	29.29	1667466
	12	133	4.5	63.62	178	37.4	23	11.5	7	98	23.1	12	6.4	2941	27.90	2289201
100	5	139.7	4.5	78.54	138	26.7	23	16	7.5	54	11.8	14	7.9	1492	33.64	1688114
	7.5	139.7	4.5	78.54	160	32.1	23	16	7.5	76	17.2	14	7.9	2179	32.81	2346344
	12	139.7	4.5	78.54	196	41.1	23	16	7.5	112	26.1	14	7.9	3318	31.40	3271074
110	5	159	5	95.03	153	32	47	19	10	59	13.0	18	9.5	1649	37.17	2278144
	7.5	159	5	95.03	179	38	47	19	10	85	19.0	18	9.5	2415	36.34	3188683
	12	159	5	95.03	219	48	47	19	10	125	29.1	18	9.5	3695	34.91	4501760
120	5	159	5	113.10	229	33.2	47	25	10	66	14.2	18	11.3	1806	40.70	2991874
	7.5	159	5	113.10	255	39.8	47	25	10	92	20.8	18	11.3	2651	39.86	4212154
	12	159	5	113.10	300	51	47	25	10	137	32.0	18	11.3	4072	38.42	6009535
130	5	177.8	5.6	132.73	234	39.2	47	30	13.5	71	15.5	22	13.3	1963	44.24	3841085
	7.5	177.8	5.6	132.73	271	46.5	47	30	13.5	108	22.7	22	13.3	2886	43.39	5434429
	12	177.8	5.6	132.73	315	58.8	47	30	13.5	152	35.0	22	13.3	4448	41.94	7822672
150	6	193.7	5.9	176.71	317	48.7	49	43	16.5	107	21.3	26	17.7	2714	50.96	7047768
	10	193.7	5.9	176.71	370	62	49	43	16.5	160	34.6	26	17.7	4398	49.62	10830632
180	10	244.5	8	254.47	434	88.7	82	68	28	200	42.0	41	25.4	5341	60.21	19360048
200	10	273	10	314.16	553	111.8	98	75	39	223	47.0	51	31.4	5969	67.27	27009820
230	15	298.5	10	415.48	784	150.8	129	83	39	357	79.6	61	41.55	10132	76.20	58826764
280	16	355.6	12.5	615.75	1060	200.4	161	/	/	470	104.3	86	61.6	13270	93.51	116033546

- ØD** External diameter of the cylinder  
**ecyl** Cylinder thickness  
**Ap** Rod thrust section  
**Pt4** Weight of the first 4 mt of the complete piston  
**Pt1** Weight for every mt of the complete piston  
**PtP** Weight of the plates  
**PgS** Weight of the ram joint  
**PgC** Weight of the cylinder joint  
**ps4** Weight of the first 4 mt of the ram  
**ps1** Weight for every mt of the ram

- Qt** Oil in the cylinder for every mt of travel with the ram completely out (must add at the minimum quantity of the oil in the tank)  
**qc** Oil in circulation for every mt of the piston travel (must compare with the quantity available in the tank)  
**A** Resistent section of the ram  
**i** Ray of the inertia of the ram  
**J** Moment of inertia of the ram

The pipes used to manufacture rams and cylinders are in FE510 materials  
 The solid used to manufacture rams are in FE410 materials



cylinder base is in FE510 materials

PISTON TYPE [mm]	Di [mm]	e1 [mm]	r1 [mm]	s1 [mm]	h1 [mm]	u1 [mm]
60, 70	94.4	20	7	6.5	17	4.5
80	106.3	21	8	6.5	18	5.5
90	124	22	8	7.5	19	6.5
100	130.7	22	8	7	19	6.5
110, 120	149	25	9	8	22	7
130	166.6	25	9	8.8	22	8
150	181.9	30	10	8.5	27	9
180	228.5	35	11	11	31	11
200	253	35	12	13.5	31	14
230	278.5	40	12	12.5	36	14
280	330.6	45	12	15.5	41	16

**CALCUL DATA  
NORMAL PISTONS**



**Start Elevator**

**09 131 / G**

**rev. 7**

**1/1**