Quality through Competence

CATALOGUE NO. 14 J 001

C.O.A.M.SRL RI VE/PI/ CF 00187090279 REA n. 93145
Via Noalese Sud, 66 Pianiga 30030 VE Italia Tel +39041468966 Fax +39041468463
e-mail: info@coam-spa.com web: www.coam-spa.com

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VERZEICHNIS
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PISTONI SERIE 4PK

LIFT CYLINDER TYPE 4PK

AUFZUGSZYLINDER TYP 4PK

CYLINDRES TYPE 4PK

C.O.A.M. srl – via noalese sud 66 30030 Pianiga VE Tel +39041468966
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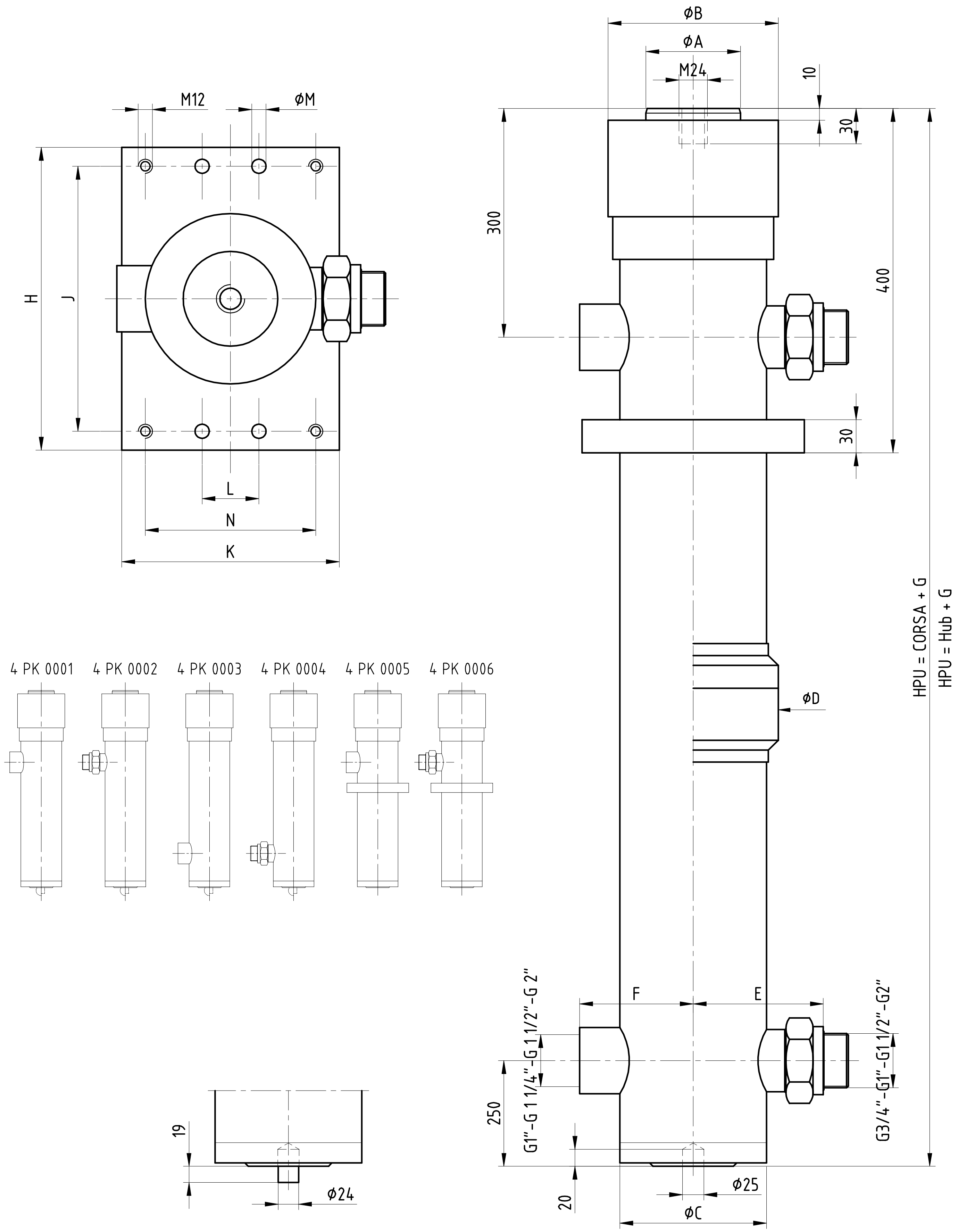
GRUPPI PISTONE–CILINDRO
CYLINDER–PISTON UNITS
HYDRAULISCHE HEBER
GROUPES CYLINDRE–VERIN

4 PK Ø50 ÷ Ø185



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GRUPPI PISTONE-CILINDRO
CYLINDER-PISTON UNITS
HYDRAULISCHE HEBER
GROUPES CYLINDRE-VERIN

4 PK ø50 ÷ ø185

4 PK 0001; 4 PK 0002; 4 PK 0003;
4 PK 0004; 4 PK 0005; 4 PK 0006

* G 1" - G 1 1/4"
** G 1 1/2" - G 2"

pist. tipo	øA	øB	øC	øD	E	F *	F **	G	H	J	K	L	M	N
50	50	100	82. 5	108	92	68	77	185	209	169	165	30	12	115
56	56	114	95	121	98	75	84	190	226	186	180	30	12	130
60	60	114	95	121	98	75	84	190	226	186	180	30	12	130
63	63	120	101. 6	121	100	78	87	195	246	196	190	40	14	140
70	70	126	108	139, 7	104	81	90	195	246	196	190	40	14	140
80	80	139	114. 3	139, 7	107	84	93	200	256	206	195	40	14	145
85	85	152	127	152, 4	114	91	100	205	274	224	210	40	14	160
90	90	152	127	152, 4	114	91	100	205	274	224	210	40	14	160
95	95	158	139. 7	165	120	97	106	208	291	241	220	60	19	170
100	100	158	139. 7	165	120	97	106	208	291	241	220	60	19	170
110	110	177	152. 4	177, 8	126	103	112	215	312	262	235	60	19	185
120	120	193	168. 3	193, 7	134	111	120	220	330	280	250	60	19	200
125	125	193	168. 3	193, 7	134	111	120	220	330	280	250	60	19	200
130	130	193	168. 3	193, 7	134	111	120	220	330	280	250	60	19	200
140	140	219	193. 7	219, 1	147	124	133	225	373	303	275	80	19	225
150	150	219	193. 7	219, 1	147	124	133	225	373	303	275	80	19	225
160	160	244	219. 1	246	160	137	146	232	410	340	300	80	19	250
170	170	273	244. 5	273	172	149	158	242	444	374	325	80	19	275
180	180	273	244. 5	273	172	149	158	242	444	374	325	80	19	275
185	185	273	244. 5	273	172	149	158	242	444	374	325	80	19	275

Con riserva di modifica / Subject to change
Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. srl – via noalese sud 66 30030 Pianiga VE Tel +39041468966
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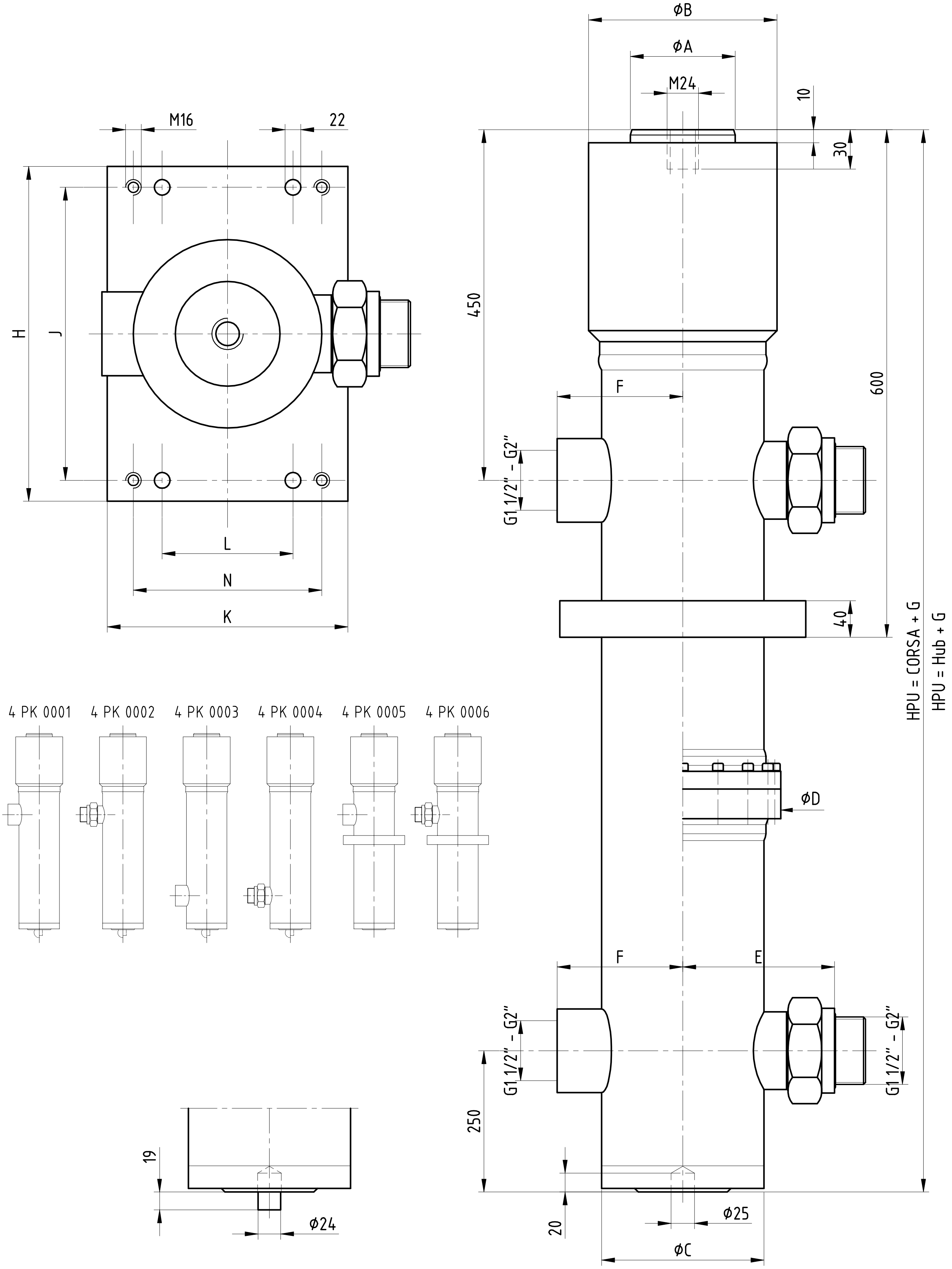
GRUPPI PISTONE–CILINDRO
CYLINDER–PISTON UNITS
HYDRAULISCHE HEBER
GROUPES CYLINDRE–VERIN

4 PK ϕ200 ÷ ϕ290



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GRUPPI PISTONE–CILINDRO
CYLINDER–PISTON UNITS
HYDRAULISCHE HEBER
GROUPES CYLINDRE–VERIN

4 PK 0001; 4 PK 0002; 4 PK 0003;
4 PK 0004; 4 PK 0005; 4 PK 0006

4 PK Ø200 ÷ Ø290

pist. tipo	ØA	ØB	ØC	ØD	E	F	G	H	J	K	L	N
200	200	298	273	330	187	173	342	500	440	400	230	350
210	210	298	273	330	187	173	342	500	440	400	230	350
220	220	322	298.5	355	199	185	352	500	440	400	230	350
230	230	322	298.5	355	199	185	352	500	440	400	230	350
240	240	354	323.9	400	212	198	355	600	540	500	330	450
260	260	366	355.6	442	228	214	358	600	540	500	330	450
280	280	395	355.6	442	228	214	399	600	540	500	330	450
290	290	395	355.6	442	228	214	399	600	540	500	330	450

Con riserva di modifica / Subject to change
Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. srl – via noalese sud 66 30030 Pianiga VE Tel +39041468966
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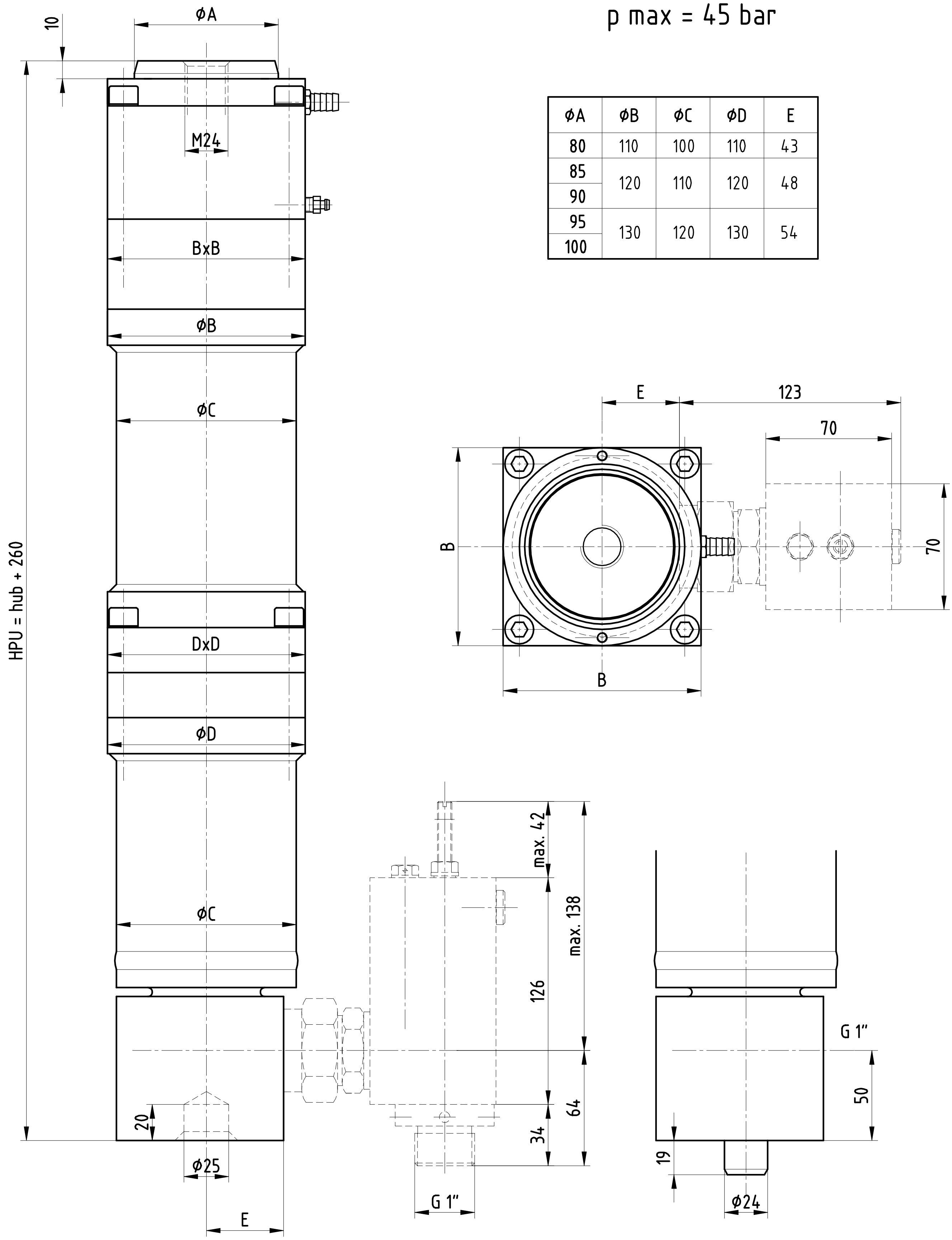
GRUPPI PISTONE–CILINDRO
CYLINDER–PISTON UNITS
HYDRAULISCHE HEBER
GROUPES CYLINDRE–VERIN

3 PS Ø80 ÷ Ø100

p max = 45 bar

ØA	ØB	ØC	ØD	E
80	110	100	110	43
85	120	110	120	48
90				
95	130	120	130	54
100				



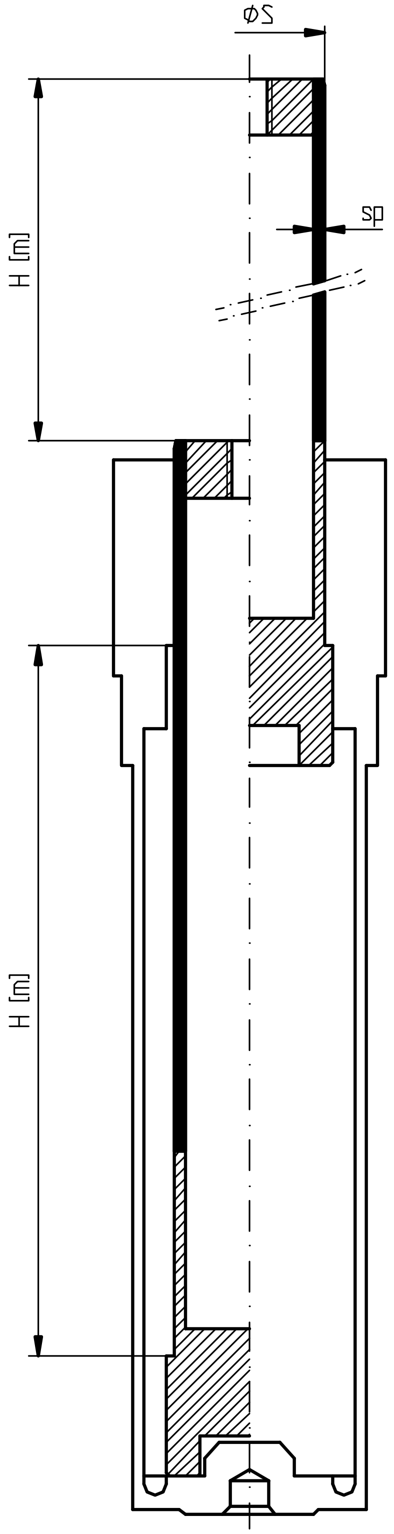
c) Mod. N°0058 del 05-06-1996

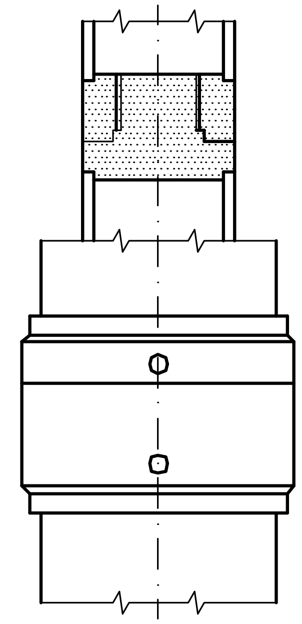
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I | GB | D | F

Ø x S	mpm	Mp0	mpg	A	A1	J	i	P_{max}
	kg/m	kg	kg	cm2	cm2	cm4	cm	MPa
50 x 0	15,4	2,40		19,6	19,63	30,7	1,25	6,6
56 x 0	19,4	2,80		24,6	24,63	48,3	1,40	6,7
60 x 0	22,2	3,60		28,3	28,27	63,6	1,50	6,7
60 x 5	6,79	3,60	1,20	28,3	8,64	32,9	1,95	6,7
63 x 0	24,5	4,00		31,2	31,17	77,3	1,58	6,3
63 x 6	8,44	3,40	1,20	31,2	10,74	44,1	2,03	6,3
70 x 0	30,3	5,20		38,5	38,48	118	1,75	5,9
70 x 5	8,03	4,20	1,60	38,5	10,21	54,2	2,30	5,9
70 x 6	9,48	4,50	1,50	38,5	12,06	62,3	2,27	5,9
70 x 7,5	11,6	4,80	1,40	38,5	14,73	72,9	2,23	5,9
80 x 0	39,5	6,50		50,3	50,27	201	2,00	5,6
80 x 5	9,26	5,60	2,20	50,3	11,78	83,2	2,66	5,6
80 x 7,5	13,4	6,00	1,90	50,3	17,08	113	2,58	5,6
80 x 10	17,3	6,30	1,60	50,3	21,99	137	2,50	5,6
80 x 12	20,2	6,50	1,50	50,3	25,64	153	2,44	5,6
80 x 15,5	24,7	6,90	1,10	50,3	31,41	173	2,35	5,6
85 x 5	9,88	6,40	2,50	56,8	12,57	101	2,83	5,7
85 x 7,5	14,4	6,70	2,20	56,8	18,26	138	2,75	5,7
90 x 0	50,0	8,00		63,6	63,62	322	2,25	5,7
90 x 5	10,5	7,20	2,80	63,6	13,35	121	3,01	5,7
90 x 7,5	15,3	7,60	2,50	63,6	19,44	167	2,93	5,7
90 x 10	19,8	8,00	2,20	63,6	25,13	204	2,85	5,7
90 x 12	23,1	8,20	2,00	63,6	29,41	229	2,79	5,7
90 x 13,5	25,5	8,50	1,80	63,6	32,44	245	2,75	5,7
95 x 5	11,1	8,20	3,20	70,9	14,14	144	3,19	6,0
95 x 7,5	16,2	8,50	2,80	70,9	20,62	199	3,10	6,0
95 x 12,7	25,8	9,40	2,10	70,9	32,84	285	2,94	6,0
100 x 5	11,7	9,00	3,60	78,5	14,92	169	3,36	6,0
100 x 7,5	17,1	9,50	3,20	78,5	21,79	235	3,28	6,0
100 x 10	22,2	10,0	2,80	78,5	28,27	290	3,20	6,0
100 x 12	26,1	10,3	2,60	78,5	33,18	327	3,14	6,0
100 x 14	29,7	10,8	2,40	78,5	37,82	359	3,08	6,0
110 x 5	13,0	11,3	4,40	95,0	16,49	228	3,72	5,5
110 x 7,5	19,0	11,8	4,00	95,0	24,15	319	3,63	5,5
110 x 10	24,7	12,6	3,60	95,0	31,42	397	3,55	5,5
110 x 12	29,0	12,8	3,30	95,0	36,95	450	3,49	5,5
110 x 14	33,2	13,1	3,00	95,0	42,22	497	3,43	5,5
110 x 20	44,5	14,2	2,20	95,0	56,55	601	3,26	5,5
120 x 5	14,2	13,2	5,40	113	18,06	299	4,07	5,7

ø x s	mpm	Mp0	mpg	A	A1	J	i	P_{max}
	kg/m	kg	kg	cm2	cm2	cm4	cm	MPa
120 x 7,5	20,8	13,8	4,90	113,1	26,51	421,2	3,99	5,7
120 x 10	27,2	14,4	4,40	113,1	34,56	527,0	3,91	5,7
120 x 12	32,0	14,8	4,10	113,1	40,72	600,9	3,84	5,7
120 x 14	36,6	15,3	3,80	113,1	46,62	666,2	3,78	5,7
120 x 16,5	42,2	15,9	3,40	113,1	53,65	736,6	3,71	5,7
125 x 7,5	21,8	14,5	5,40	122,7	27,69	479,7	4,16	5,7
125 x 10	28,4	15,1	5,20	122,7	36,13	601,7	4,08	5,7
125 x 15	40,7	16,1	4,90	122,7	51,84	798,6	3,93	5,7
130 x 5	15,4	15,6	6,20	132,7	19,63	384,1	4,42	5,7
130 x 7,5	22,7	15,9	5,90	132,7	28,86	543,4	4,34	5,7
130 x 12	35,0	17,2	5,00	132,7	44,48	782,2	4,19	5,7
140 x 7,5	24,5	19,1	7,00	153,9	31,22	687,3	4,69	5,0
140 x 10	32,1	19,8	6,40	153,9	40,84	867,8	4,61	5,0
140 x 14	43,6	20,9	5,50	153,9	55,42	1.113	4,48	5,0
140 x 22	64,1	22,8	4,10	153,9	81,56	1.469	4,24	5,0
150 x 7,5	26,4	21,9	8,10	176,7	33,58	854,6	5,05	5,0
150 x 10	34,6	23,1	7,60	176,7	43,98	1.083	4,96	5,0
150 x 15,5	51,5	24,2	6,30	176,7	65,49	1.501	4,79	5,0
160 x 7,5	28,2	24,5	9,40	201,1	35,93	1.047	5,40	5,1
160 x 10	37,0	25,3	8,70	201,1	47,12	1.331	5,32	5,1
160 x 14	50,5	26,6	7,90	201,1	64,21	1.727	5,19	5,1
170 x 8,6	34,3	28,5	9,60	227,0	43,61	1.424	5,71	5,2
170 x 10,3	40,6	29,5	9,00	227,0	51,68	1.654	5,66	5,2
170 x 13,6	52,5	30,2	8,70	227,0	66,82	2.059	5,55	5,2
180 x 7,5	32,0	31,4	12,1	254,5	40,64	1.515	6,10	5,2
180 x 10	42,0	32,4	11,4	254,5	53,41	1.936	6,02	5,2
180 x 14	57,4	34,1	10,5	254,5	73,01	2.533	5,89	5,2
185 x 8,15	35,6	33,5	11,5	268,8	45,28	1.774	6,26	5,2
185 x 13,15	55,8	38,7	10,6	268,8	70,99	2.636	6,09	5,2
200 x 12	55,7	40,5	18,5	314,2	70,87	3.144	6,66	6,0
210 x 12,95	63,0	44,5	21,4	346,4	80,17	3.908	6,98	6,0
220 x 12	61,6	46,3	23,5	380,1	78,41	4.255	7,69	5,5
230 x 12,75	68,4	50,4	27,5	415,5	87,02	5.152	7,69	5,5
240 x 12	67,6	50,6	31,3	452,4	85,95	5.601	8,07	6,5
240 x 13,75	76,8	52,7	29,7	452,4	97,73	6.277	8,01	6,5
240 x 15,25	84,6	54,3	27,5	452,4	107,7	6.830	7,96	6,5
260 x 13,5	82,2	62,5	35,4	530,9	104,5	7.964	8,73	5,9
280 x 12,95	85,4	72,5	40,2	615,8	108,7	9.708	9,45	5,9
290 x 13,25	90,6	80,5	45,5	660,5	115,2	11.054	9,80	5,9



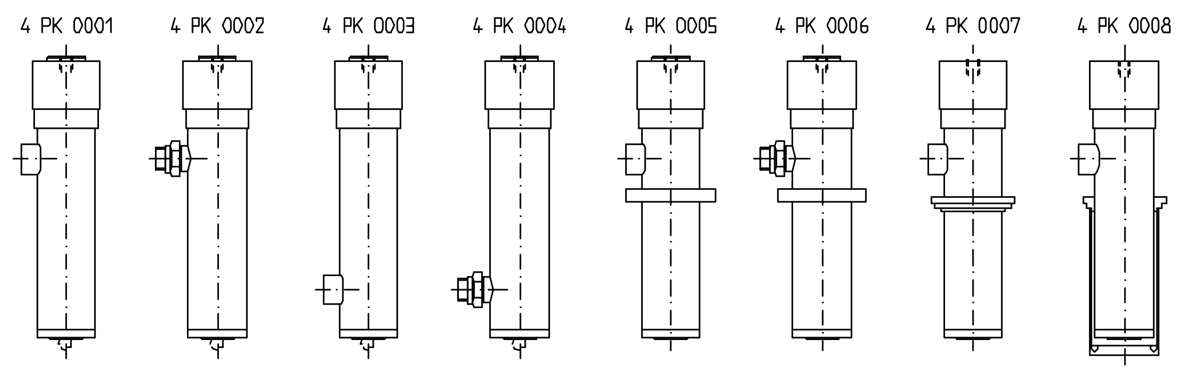


massa / masse / masse / mass

mpm x H . . . . [kg]

mpo . . . . [kg]

mpg . . . . [kg]



C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	DATI TECNICI DEL PISTONE TECHNICAL DATA OF PISTONS TECHNISCHE DATEN DER KOLBEN DONNEES TECHNIQUES DES PISTONS	Disegnato: Paolo G.	20-05-1991
		Controllato	
		Nullaosta	
Sost. il: 2 PX 0181b / Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0 1 8 1 c	Pag. 1 di 1

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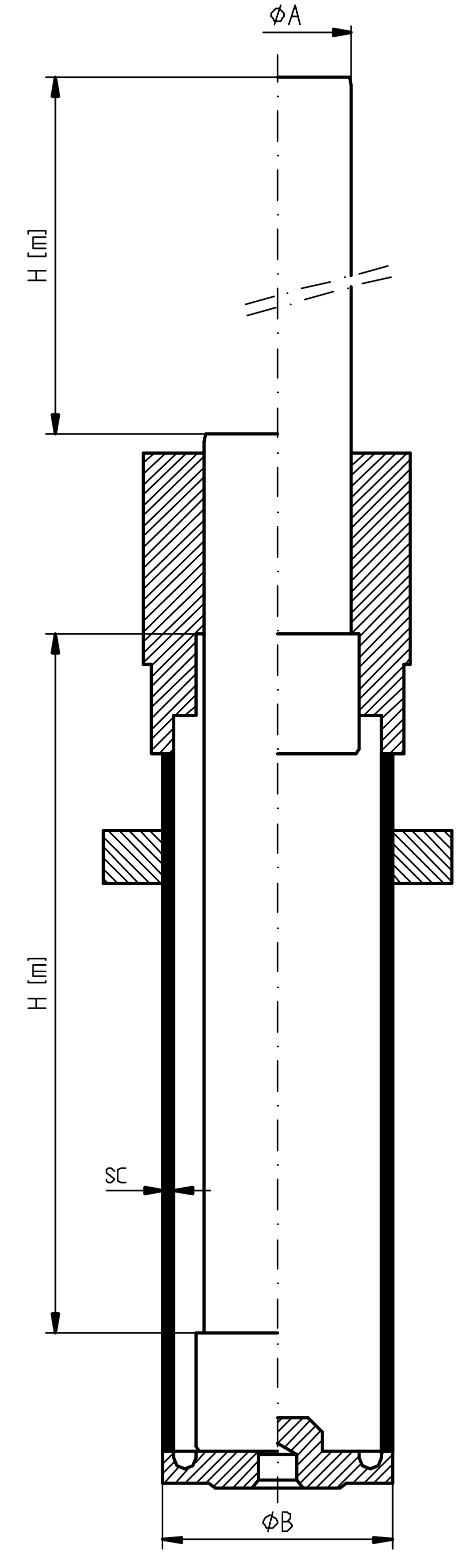
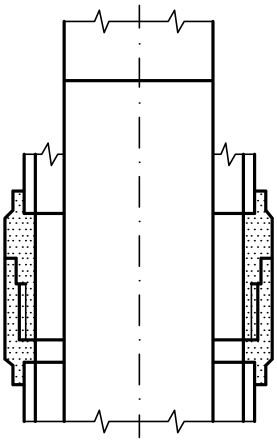
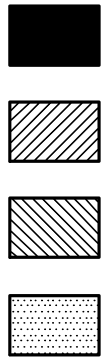




massa / masse / masse / mass



mcm x H . . . . [kg]

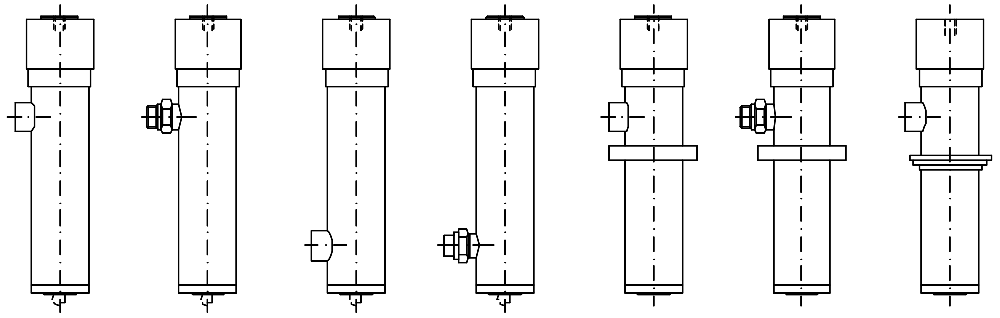
mco . . . . [kg]

mcp . . . . [kg]

mcg . . . . [kg]

ϕA	ϕB	sc mm	mcm kg/m	mco kg	mcp kg	mcg kg	p MPa
50	82, 5	4, 0	7, 8	5, 3	6, 8	2, 2	6, 60
56	95, 0	4, 5	10, 1	8, 4	7, 8	2, 6	6, 69
60	95, 0	4, 5	10, 1	8, 1	7, 8	2, 6	6, 69
63	101, 6	4, 5	10, 7	9, 2	8, 9	2, 7	6, 26
70	108, 0	4, 5	11, 5	9, 7	8, 8	2, 9	5, 88
80	114, 3	4, 5	12, 2	11, 7	9, 3	3, 0	5, 56
85	127, 0	5, 0	15, 1	14, 7	10, 5	3, 4	5, 72
90	127, 0	5, 0	15, 1	14, 0	10, 5	3, 4	5, 72
95	139, 7	5, 6	18, 5	15, 9	11, 4	4, 2	5, 98
100	139, 7	5, 6	18, 5	15, 1	11, 4	4, 2	5, 98
110	152, 4	5, 6	20, 3	19, 7	12, 9	4, 0	5, 48
120	168, 3	6, 3	25, 2	24, 4	14, 1	5, 7	5, 72
125	168, 3	6, 3	25, 2	24, 4	14, 1	5, 7	5, 72
130	168, 3	6, 3	25, 2	21, 6	14, 1	5, 7	5, 72
140	193, 7	6, 3	29, 2	30, 4	17, 1	7, 2	4, 97
150	193, 7	6, 3	29, 2	27, 8	17, 1	7, 2	4, 97
160	219, 1	7, 1	37, 2	38, 9	19, 9	8, 3	5, 06
170	244, 5	8, 0	46, 7	55, 5	24, 5	10, 1	5, 20
180	244, 5	8, 0	46, 7	52, 5	24, 5	10, 1	5, 20
185	244, 5	8, 0	46, 7	50, 5	24, 5	10, 1	5, 20
200	273, 0	10, 0	64, 9	96, 3	44, 5	13, 5	5, 19
210	273, 0	10, 0	64, 9	94, 5	44, 5	13, 5	5, 19
220	298, 5	10, 0	71, 2	122, 5	40, 9	16, 5	5, 47
230	298, 5	10, 0	71, 2	120, 3	40, 9	16, 5	5, 47
240	323, 9	12, 5	96, 1	138, 7	68, 4	18, 8	6, 45
260	355, 6	12, 5	105, 9	212, 4	63, 1	20, 1	5, 87
280	355, 6	12, 5	105, 9	225, 7	63, 1	20, 1	5, 87
290	355, 6	12, 5	105, 9	223, 4	63, 1	20, 1	5, 87

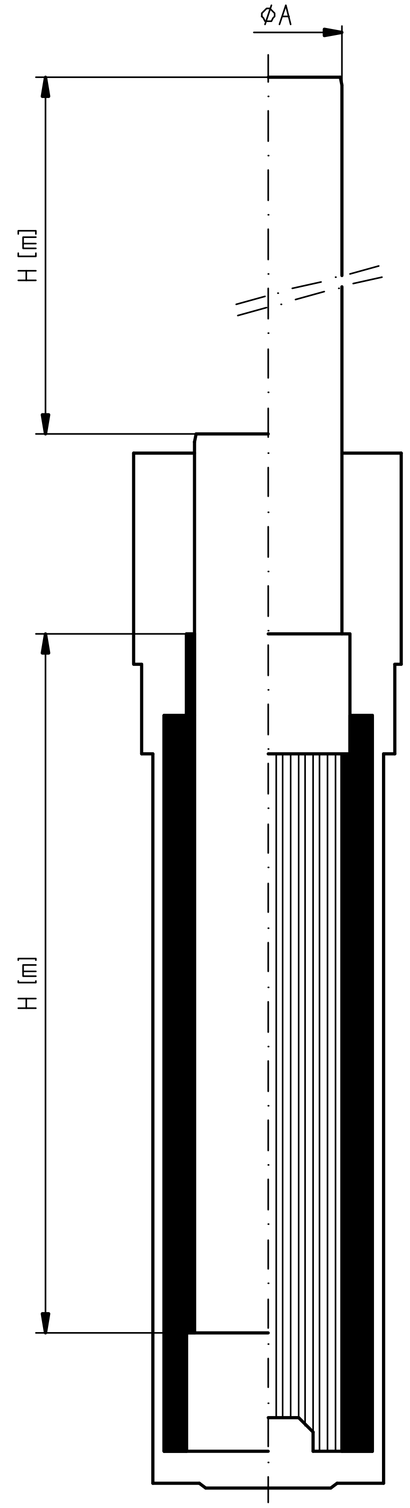
EN 81.2



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	DATI TECNICI DEL CILINDRO TECHNICAL DATA OF CYLINDERS TECHNISCHE DATEN DER ZYLINDER DONNEES TECHNIQUES DES CYLINDRES	Disegnato	Paolo G. 20-05-1991
		Controllato	
		Nullaosta	
Sost. il 2 PX 0182b Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0 1 8 2 c	Pag. di

I GB D F

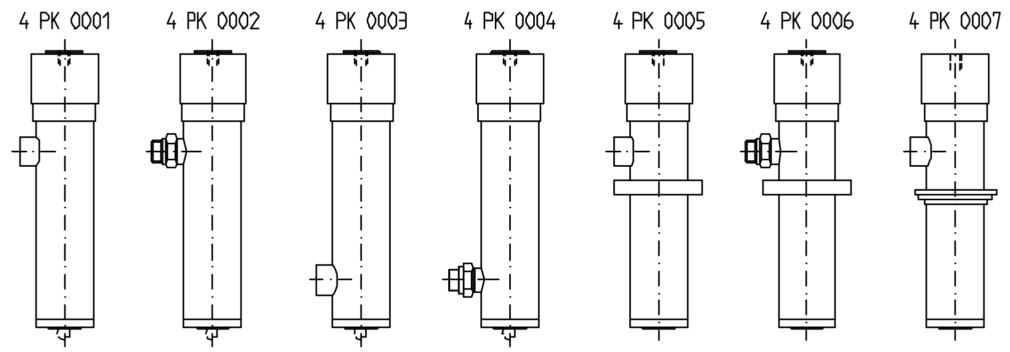


OLIO / OIL / OEL / HUILE 1 l ≈ 0.88 kg

C1 x H . . . . [l]

C2 x H . . . . [l]

ØA	C1 l/m	C2 l/m
50	2. 40	1. 96
56	3. 35	2. 46
60	2. 98	2. 83
63	3. 62	3. 12
70	3. 85	3. 85
80	3. 68	5. 03
85	5. 08	5. 67
90	4. 39	6. 36
95	5. 88	7. 09
100	5. 11	7. 85
110	6. 16	9. 50
120	7. 73	11. 31
125	6. 77	12. 27
130	5. 77	13. 27
140	10. 37	15. 39
150	8. 09	17. 67
160	12. 87	20. 11
170	18. 31	22. 70
180	15. 56	25. 45
185	14. 13	26. 88
200	18. 86	31. 42
210	15. 64	34. 64
220	22. 90	38. 01
230	19. 37	41. 55
240	24. 93	45. 24
260	32. 75	53. 09
280	24. 27	61. 58
290	19. 79	66. 05



c) Mod. N°0058 del 05-06-1996 P.G

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I | GB | D | F

C.O.A.M. S.p.A.
COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI

QUANTITA DI OLIO
QUANTITY OF OIL
OELMENGEN
QUANTITES D'HUILE

Disegnato	Paolo G.	20-05-1991
Controllato		
Nullaosta		

Sost. il 2 PX 0183b
Sost. dal

DOCUMENTAZIONI TECNICHE 2 P X 0 1 8 3 c

Pag.
di

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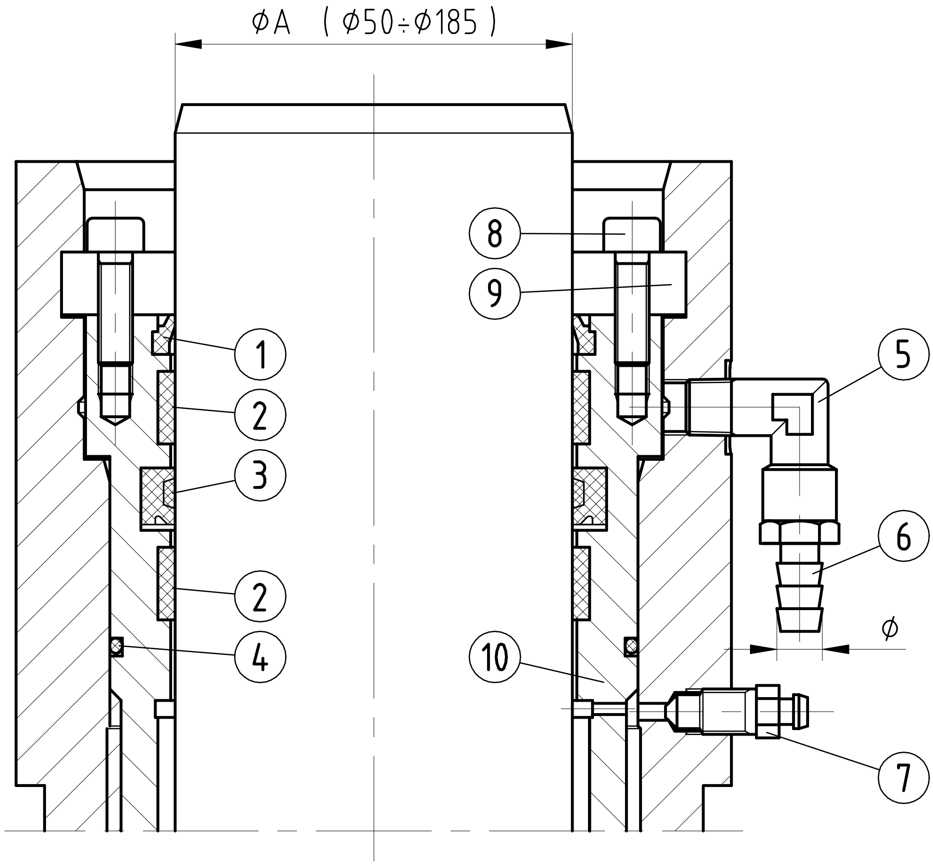
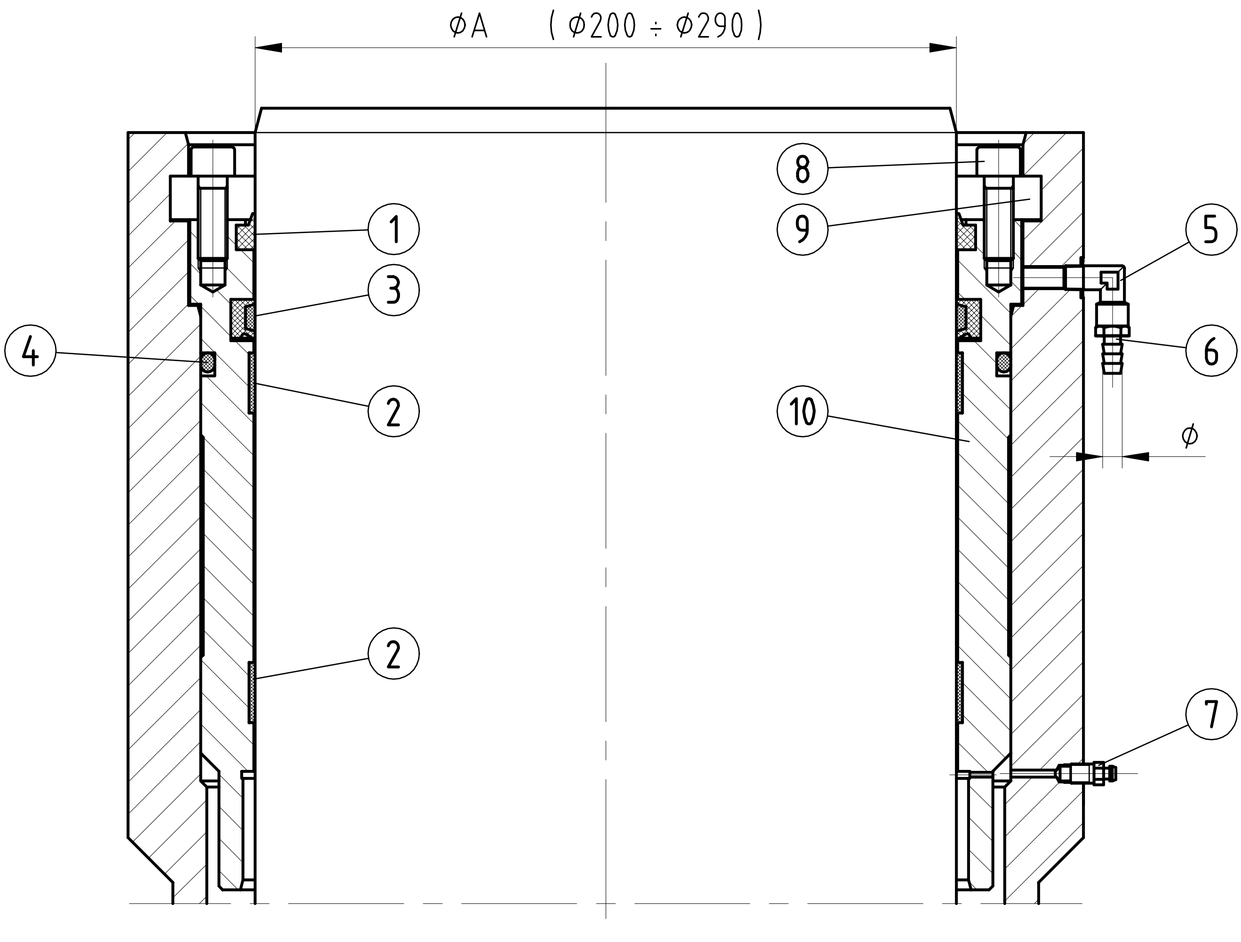
PEZZI DI RICAMBIO PER PISTONI 4 PK
PARTS LIST FOR PISTONS 4 PK
ERSATZTEILE FUER HEBER 4 PK
PIECES DE RECHANGE POUR VERINS 4PK





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PEZZI DI RICAMBIO PER PISTONI 4 PK
PARTS LIST FOR PISTONS 4 PK
ERSATZTEILE FUER HEBER 4 PK
PIECES DE RECHANGE POUR VERINS 4PK

	A	ARTICOLO N° – ARTICLE No. – ARTIKEL Nr. – ARTICLE No.							
		1	2	3	4	1+2+3+4	8	9	10
	50	9XQ0365	9XQ1718	9XQ2249	9XQ5606	3PD0126	9XD0658	4PK4350	4PK4300
	56	9XQ0366	9XQ1720	9XQ2201	9XQ5612	3PD0127	9XD0671	4PK4351	4PK4315
	60	9XQ0380	9XQ1721	9XQ2250	9XQ5612	3PD0128	9XD0671	4PK4351	4PK4301
	63	9XQ0379	9XQ1722	9XQ2203	9XQ5613	3PD0129	9XD0671	4PK4363	4PK4316
	70	9XQ0368	9XQ1724	9XQ2251	9XQ5614	3PD0130	9XD0671	4PK4352	4PK4302
	80	9XQ0369	9XQ1726	9XQ2252	9XQ5615	3PD0131	9XD0671	4PK4353	4PK4303
	85	9XQ0353	9XQ1727	9XQ2207	9XQ5617	3PD0132	9XD0671	4PK4354	4PK4304
	90	9XQ0370	9XQ1728	9XQ2208	9XQ5617	3PD0133	9XD0671	4PK4354	4PK4305
	95	9XQ0354	9XQ1729	9XQ2209	9XQ5619	3PD0134	9XD0671	4PK4355	4PK4306
	100	9XQ0371	9XQ1730	9XQ2210	9XQ5619	3PD0135	9XD0671	4PK4355	4PK4307
	110	9XQ0372	9XQ1732	9XQ2213	9XQ5620	3PD0136	9XD0684	4PK4356	4PK4308
	120	9XQ0381	9XQ1734	9XQ2216	9XQ5623	3PD0137	9XD0684	4PK4357	4PK4309
	125	9XQ0373	9XQ1735	9XQ2217	9XQ5623	3PD0138	9XD0684	4PK4358	4PK4317
	130	9XQ0356	9XQ1736	9XQ2248	9XQ5623	3PD0139	9XD0684	4PK4358	4PK4310
	140	9XQ0374	9XQ1738	9XQ2221	9XQ5626	3PD0140	9XD0685	4PK4359	4PK4311
	150	9XQ0357	9XQ1740	9XQ2222	9XQ5627	3PD0141	9XD0685	4PK4360	4PK4312
	160	9XQ0375	9XQ1742	9XQ2224	9XQ5630	3PD0142	9XD0685	4PK4361	4PK4313
	170	9XQ0367	9XQ1744	9XQ2227	9XQ5633	3PD0166	9XD0685	4PK4362	4PK4327
	180	9XQ0376	9XQ1746	9XQ2229	9XQ5633	3PD0143	9XD0685	4PK4362	4PK4314
	185	9XQ0177	9XQ1747	9XQ2231	9XQ5633	3PD0144	9XD0685	4PK4362	4PK4318
	200	9XQ0165	9XQ2330	9XQ2234	9XQ5734	3PD0145	9XD0698	4PK4364	4PK4319
	210	9XQ0166	9XQ2332	9XQ2235	9XQ5734	3PD0146	9XD0698	4PK4364	4PK4320
	220	9XQ0167	9XQ2334	9XQ2236	9XQ5815	3PD0147	9XD0698	4PK4365	4PK4321
	230	9XQ0168	9XQ2336	9XQ2238	9XQ5815	3PD0148	9XD0698	4PK4365	4PK4322
	240	9XQ0169	9XQ2338	9XQ2240	9XQ5817	3PD0149	9XD0698	4PK4366	4PK4323
→2014	260	9XQ0171	9XQ2342	9XQ2244	9XQ5428	3PD0151	9XD0719	4PK4367	4PK4324
2015→	260	9XQ0171	9XQ2342	9XQ2244	9XQ5429	3PD0151	9XD0719	4PK4368	4PK4330
	280	9XQ0173	9XQ2346	9XQ2246	9XQ5429	3PD0152	9XD0719	4PK4368	4PK4325
	290	9XQ0174	9XQ2348	9XQ2247	9XQ5429	3PD0153	9XD0719	4PK4368	4PK4326

→2014	Prodotto fino al 2014 – Produced until 2014 – Hergestellt bis 2014 – Produit jusqu'à 2014
2015→	Prodotto dal 2015 – Produced from 2015 – Hergestellt vom 2015 – Produit depuis 2015

ARTICOLO Nr. – ARTICLE No. – ARTIKEL Nr. – ARTICLE No.			
5 (1/8")	6 (⌀ 8)	6 (⌀ 10)	7
9YP1750	9YP3213	9YP3202	9YP3201

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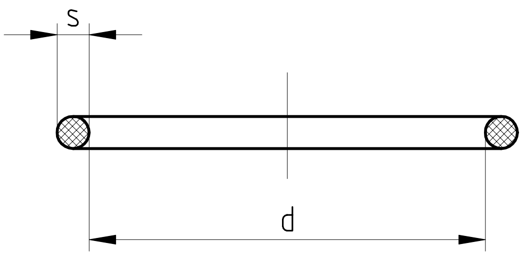
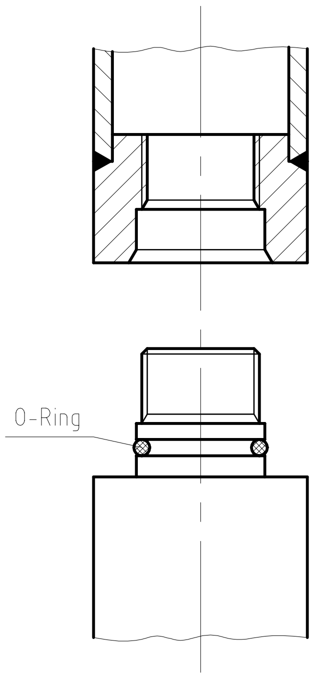
PEZZI DI RICAMBIO PER PISTONI 4 PK
PARTS LIST FOR PISTONS 4 PK
ERSATZTEILE FUER HEBER 4 PK
PIECES DE RECHANGE POUR VERINS 4PK



OR per pistoni in due pezzi — O-Ring for piston in two pieces
O-Ringe fuer geteilte Kolben — OR pour piston en deux pièces

ØA	Code-Nr.	Ref.-Nr.	d	s	
60	9 XQ 5590	OR 129	39, 34	2, 62	NBR 90
63	9 XQ 5590	OR 129	39, 34	2, 62	NBR 90
70	9 XQ 5590	OR 129	39, 34	2, 62	NBR 90
80	9 XQ 5590	OR 129	39, 34	2, 62	NBR 90
85	9 XQ 5594	OR 133	45, 69	2, 62	NBR 90
90	9 XQ 5594	OR 133	45, 69	2, 62	NBR 90
95	9 XQ 5594	OR 133	45, 69	2, 62	NBR 90
100	9 XQ 5600	OR 139	55, 25	2, 62	NBR 90
110	9 XQ 5600	OR 139	55, 25	2, 62	NBR 90
120	9 XQ 5605	OR 144	63, 17	2, 62	NBR 90
125	9 XQ 5605	OR 144	63, 17	2, 62	NBR 90
130	9 XQ 5605	OR 144	63, 17	2, 62	NBR 90
140	9 XQ 5612	OR 151	75, 87	2, 62	NBR 90
150	9 XQ 5612	OR 151	75, 87	2, 62	NBR 90
160	9 XQ 5615	OR 154	94, 92	2, 62	NBR 90
170	9 XQ 5618	OR 157	113, 97	2, 62	NBR 90
180	9 XQ 5618	OR 157	113, 97	2, 62	NBR 90
185	9 XQ 5618	OR 157	113, 97	2, 62	NBR 90
200	9 XQ 5720	OR 258	151, 99	3, 53	NBR 90
210	9 XQ 5722	OR 260	164, 69	3, 53	NBR 90
220	9 XQ 5723	OR 261	171, 04	3, 53	NBR 90
230	9 XQ 5725	OR 263	183, 74	3, 53	NBR 90
240	9 XQ 5726	OR 264	190, 09	3, 53	NBR 90
260	9 XQ 5729	OR 267	209, 14	3, 53	NBR 90
280	9 XQ 5278	OR 271	234, 54	3, 53	NBR 70
290	9 XQ 5734	OR 272	240, 89	3, 53	NBR 90



Filettatura metrica
Metric thread
Metrisches Gewinde
Filetage métrique

Con riserva di modifica / Subject to change
Aenderungen vorbehalten / Sous réserve de modification

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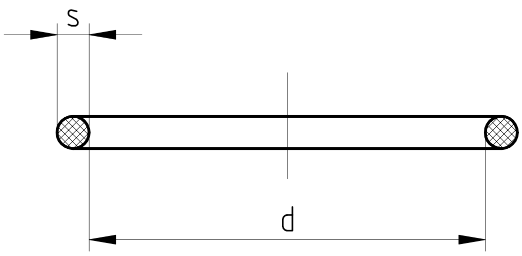
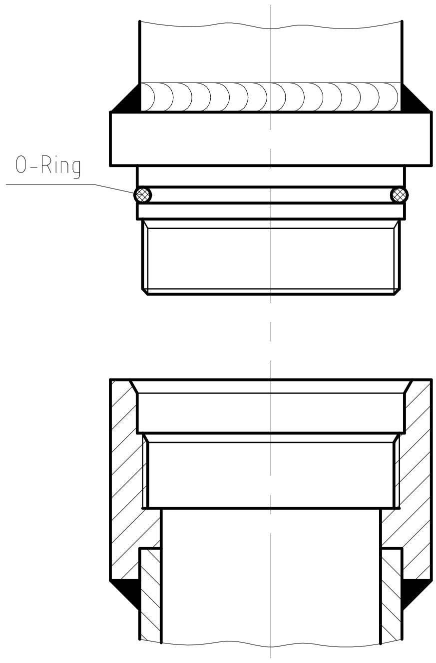
PEZZI DI RICAMBIO PER PISTONI 4 PK
PARTS LIST FOR PISTONS 4 PK
ERSATZTEILE FUER HEBER 4 PK
PIECES DE RECHANGE POUR VERINS 4PK



OR per cilindri in due pezzi — O-Ring for piston in two pieces
O-Ringe fuer geteilte Zylinder — OR pour cylindre en deux pièces

ØA	Code-Nr.	Ref.-Nr.	d	s	
50	9 XQ 5613	OR 152	82, 22	2, 62	NBR 90
56	9 XQ 5615	OR 154	94, 92	2, 62	NBR 90
60	9 XQ 5615	OR 154	94, 92	2, 62	NBR 90
63	9 XQ 5616	OR 155	101, 27	2, 62	NBR 90
70	9 XQ 5617	OR 156	107. 62	2, 62	NBR 90
80	9 XQ 5618	OR 157	113, 97	2, 62	NBR 90
85	9 XQ 5620	OR 159	126, 67	2, 62	NBR 90
90	9 XQ 5620	OR 159	126, 67	2, 62	NBR 90
95	9 XQ 5622	OR 161	139, 37	2, 62	NBR 90
100	9 XQ 5622	OR 161	139. 37	2, 62	NBR 90
110	9 XQ 5623	OR 162	145, 72	2. 62	NBR 90
120	9 XQ 5626	OR 165	164, 77	2, 62	NBR 90
125	9 XQ 5626	OR 165	164, 77	2, 62	NBR 90
130	9 XQ 5626	OR 165	164, 77	2, 62	NBR 90
140	9 XQ 5630	OR 169	190, 17	2, 62	NBR 90
150	9 XQ 5630	OR 169	190, 17	2, 62	NBR 90
160	9 XQ 5634	OR 173	215, 57	2, 62	NBR 90
170	9 XQ 5638	OR 177	240, 97	2, 62	NBR 90
180	9 XQ 5638	OR 177	240, 97	2, 62	NBR 90
185	9 XQ 5638	OR 177	240, 97	2, 62	NBR 90
200	9 XQ 5737	OR 275	266, 29	3, 53	NBR 90
210	9 XQ 5737	OR 275	266, 29	3, 53	NBR 90
220	9 XQ 5818	OR 380	291, 47	5, 33	NBR 90
230	9 XQ 5818	OR 380	291, 47	5, 33	NBR 90
240	9 XQ 5429	OR 454	316, 87	6, 99	NBR 70
260	9 XQ 5432	OR 457	354, 97	6, 99	NBR 70
280	9 XQ 5432	OR 457	354, 97	6, 99	NBR 70
290	9 XQ 5432	OR 457	354, 97	6, 99	NBR 70



Filettatura metrica
Metric thread
Metrisches Gewinde
Filetage métrique

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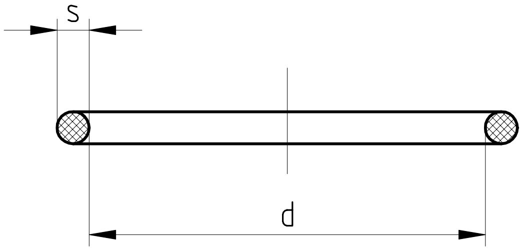
COAM

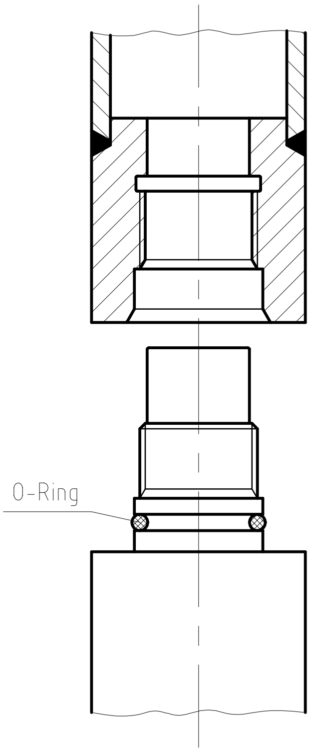
PEZZI DI RICAMBIO PER PISTONI 4 PK
PARTS LIST FOR PISTONS 4 PK
ERSATZTEILE FUER HEBER 4 PK
PIECES DE RECHANGE POUR VERINS 4PK



OR per pistoni in due pezzi — O-Ring for piston in two pieces

O-Ringe fuer geteilte Kolben — OR pour piston en deux pièces

ØA	Code-Nr.	Ref.-Nr.	d	s	
50	9 XQ 5587	OR 126	34,59	2,62	NBR 90
56	9 XQ 5589	OR 128	37,77	2,62	NBR 90
60	9 XQ 5592	OR 131	42,52	2,62	NBR 90
63	9 XQ 5592	OR 131	42,52	2,62	NBR 90
70	9 XQ 5595	OR 134	47,29	2,62	NBR 90
80	9 XQ 5599	OR 138	53,64	2,62	NBR 90
85	9 XQ 5602	OR 141	58,42	2,62	NBR 90
90	9 XQ 5602	OR 141	58,42	2,62	NBR 90
95	9 XQ 5605	OR 144	63.17	2.62	NBR 90
100	9 XQ 5609	OR 148	69,52	2,62	NBR 90
110	9 XQ 5609	OR 148	69,52	2,62	NBR 90
120	9 XQ 5613	OR 152	82,22	2,62	NBR 90
125	9 XQ 5614	OR 153	88,57	2,62	NBR 90
130	9 XQ 5614	OR 153	88,57	2,62	NBR 90
140	9 XQ 5615	OR 154	94.92	2,62	NBR 90
150	9 XQ 5618	OR 157	113,97	2,62	NBR 90
160	9 XQ 5619	OR 158	120,32	2,62	NBR 90
170	9 XQ 5621	OR 160	133,02	2,62	NBR 90
180	9 XQ 5622	OR 161	139,37	2,62	NBR 90
185	9 XQ 5623	OR 162	145,72	2,62	NBR 90
200	9 XQ 5625	OR 164	158,42	2,62	NBR 90
210	9 XQ 5722	OR 260	164,69	3,53	NBR 90
220	9 XQ 5724	OR 262	177,39	3,53	NBR 90
230	9 XQ 5725	OR 263	183,74	3,53	NBR 90
240	9 XQ 5727	OR 265	196,44	3,53	NBR 90
260	9 XQ 5730	OR 268	215,49	3,53	NBR 90
280	9 XQ 5733	OR 271	234,54	3,53	NBR 90
290	9 XQ 5735	OR 273	247,24	3,53	NBR 90



Filettatura trapezoidale
Acme thread
Trapezgewinde
Filetage trapézoïdal

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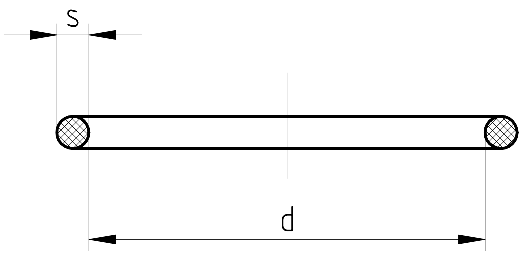
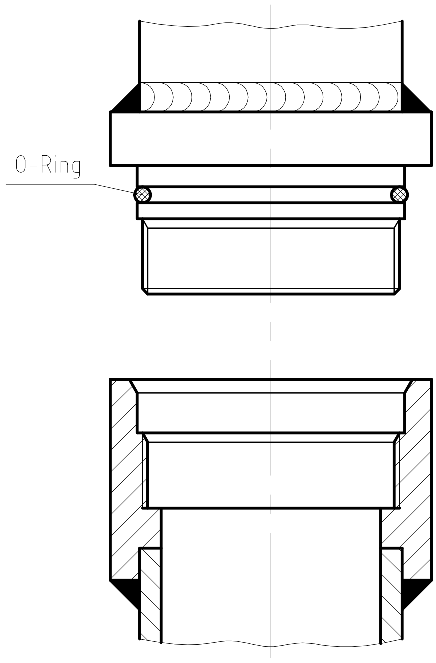
PEZZI DI RICAMBIO PER PISTONI 4 PK
PARTS LIST FOR PISTONS 4 PK
ERSATZTEILE FUER HEBER 4 PK
PIECES DE RECHANGE POUR VERINS 4PK



OR per cilindri in due pezzi — O-Ring for piston in two pieces

O-Ringe fuer geteilte Zylinder — OR pour cylindre en deux pièces

ØA	Code-Nr.	Ref.-Nr.	d	s	
50	9 XQ 5614	OR 153	88, 57	2, 62	NBR 90
56	9 XQ 5616	OR 155	101, 27	2, 62	NBR 90
60	9 XQ 5616	OR 155	101, 27	2, 62	NBR 90
63	9 XQ 5616	OR 155	101, 27	2. 62	NBR 90
70	9 XQ 5619	OR 158	120, 32	2, 62	NBR 90
80	9 XQ 5619	OR 158	120, 32	2, 62	NBR 90
85	9 XQ 5621	OR 160	133, 02	2, 62	NBR 90
90	9 XQ 5621	OR 160	133, 02	2, 62	NBR 90
95	9 XQ 5623	OR 162	145, 72	2, 62	NBR 90
100	9 XQ 5623	OR 162	145, 72	2, 62	NBR 90
110	9 XQ 5625	OR 164	158, 42	2, 62	NBR 90
120	9 XQ 5723	OR 261	171, 04	3, 53	NBR 90
125	9 XQ 5723	OR 261	171, 04	3, 53	NBR 90
130	9 XQ 5723	OR 261	171, 04	3, 53	NBR 90
140	9 XQ 5727	OR 265	196, 44	3, 53	NBR 90
150	9 XQ 5727	OR 265	196, 44	3, 53	NBR 90
160	9 XQ 5731	OR 269	221, 84	3, 53	NBR 90
170	9 XQ 5734	OR 272	240, 89	3, 53	NBR 90
180	9 XQ 5734	OR 272	240, 89	3, 53	NBR 90
185	9 XQ 5734	OR 272	240, 89	3, 53	NBR 90
200	9 XQ 5816	OR 378	266, 07	5, 33	NBR 90
210	9 XQ 5816	OR 378	266, 07	5, 33	NBR 90
220	9 XQ 5818	OR 380	291, 47	5, 33	NBR 90
230	9 XQ 5818	OR 380	291, 47	5, 33	NBR 90
240	9 XQ 5867	OR 454	316, 87	6, 99	NBR 90
260	9 XQ 5869	OR 456	342, 27	6, 99	NBR 90
280	9 XQ 5869	OR 456	342, 27	6, 99	NBR 90
290	9 XQ 5869	OR 456	342, 27	6, 99	NBR 90



Filettatura trapezoidale
Acme thread
Trapezgewinde
Filetage trapézoïdal

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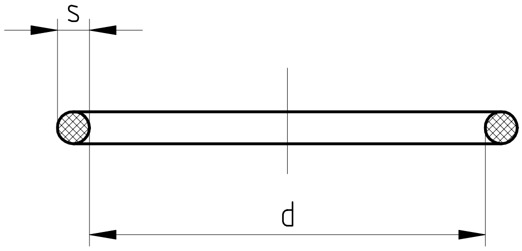
PEZZI DI RICAMBIO PER PISTONI 4 PK
PARTS LIST FOR PISTONS 4 PK
ERSATZTEILE FUER HEBER 4 PK
PIECES DE RECHANGE POUR VERINS 4PK

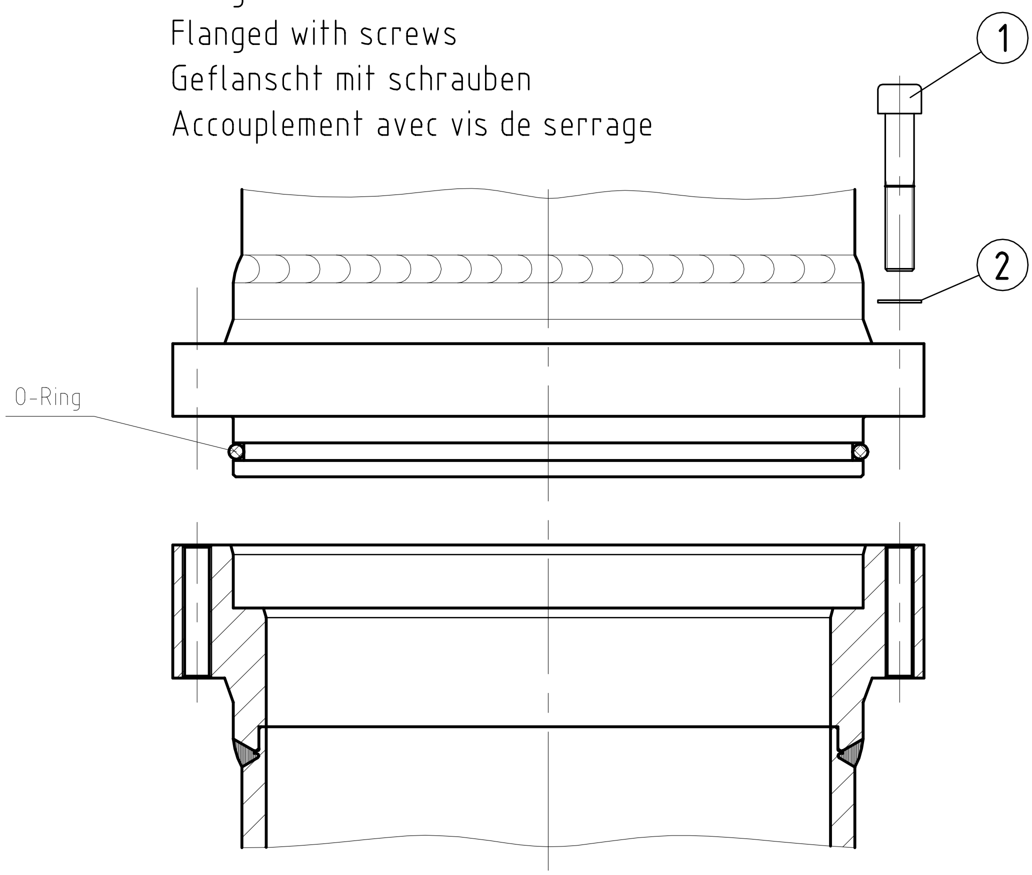


OR per cilindri in due pezzi — O-Ring for piston in two pieces

O-Ringe fuer geteilte Zylinder — OR pour cylindre en deux pièces

ØA	Code-Nr.	Ref.-Nr.	d	s		1	2	Qty.
200	9 XQ 5816	OR 378	266,07	5,33	NBR 90	9 XD 0725	9 XL 0186	16
210	9 XQ 5816	OR 378	266,07	5,33	NBR 90	9 XD 0725	9 XL 0186	16
220	9 XQ 5818	OR 380	291,47	5,33	NBR 90	9 XD 0725	9 XL 0186	18
230	9 XQ 5818	OR 380	291,47	5,33	NBR 90	9 XD 0725	9 XL 0186	18
240	9 XQ 5866	OR 453	304,17	6,99	NBR 90	9 XD 0766	9 XL 0188	16
260	9 XQ 5869	OR 456	342,27	6,99	NBR 90	9 XD 0801	9 XL 0190	16
280	9 XQ 5869	OR 456	342,27	6,99	NBR 90	9 XD 0801	9 XL 0190	16
290	9 XQ 5869	OR 456	342,27	6,99	NBR 90	9 XD 0801	9 XL 0190	16

Flangiata con viti
Flanged with screws
Geflanscht mit schrauben
Accouplement avec vis de serrage



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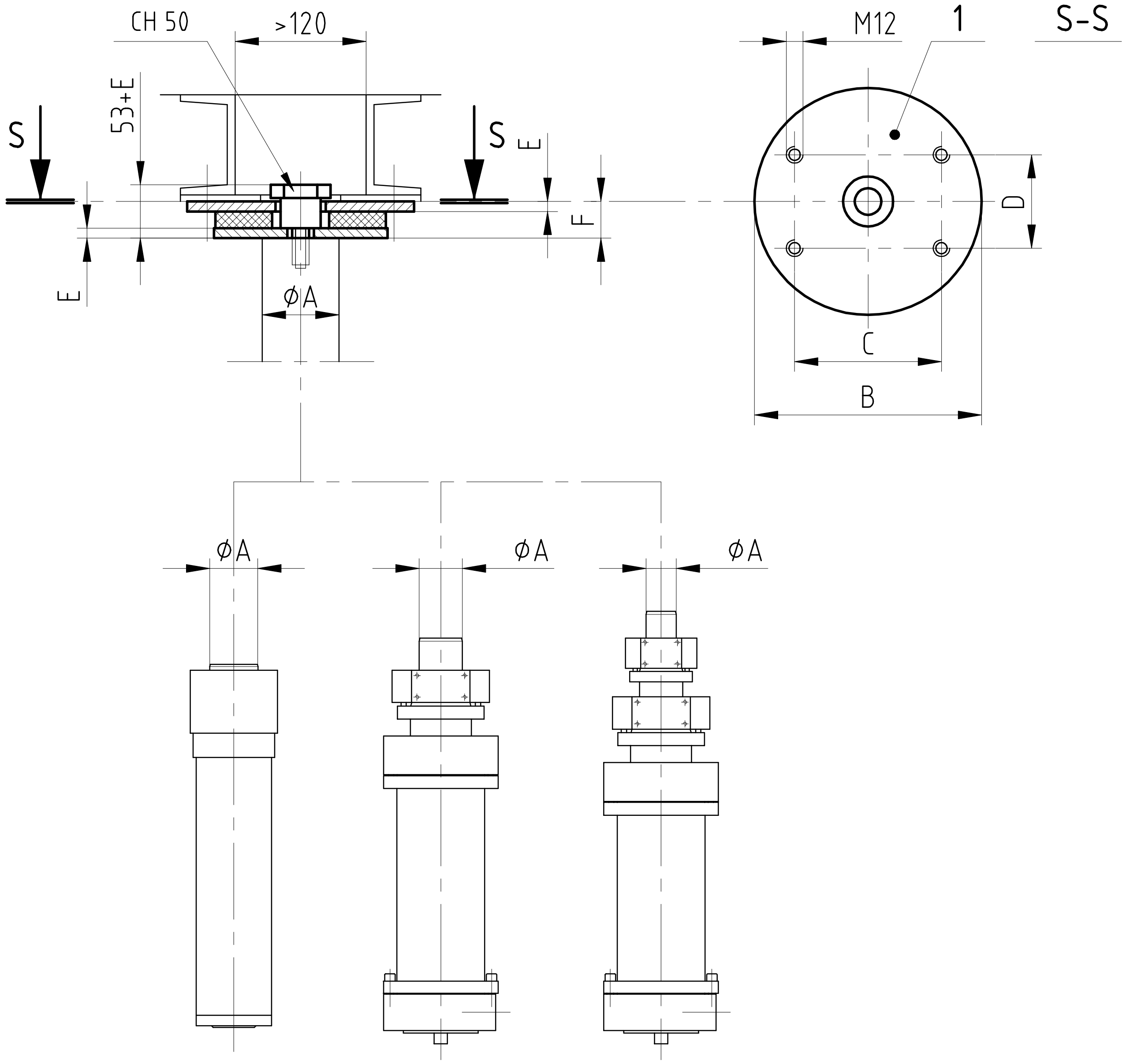
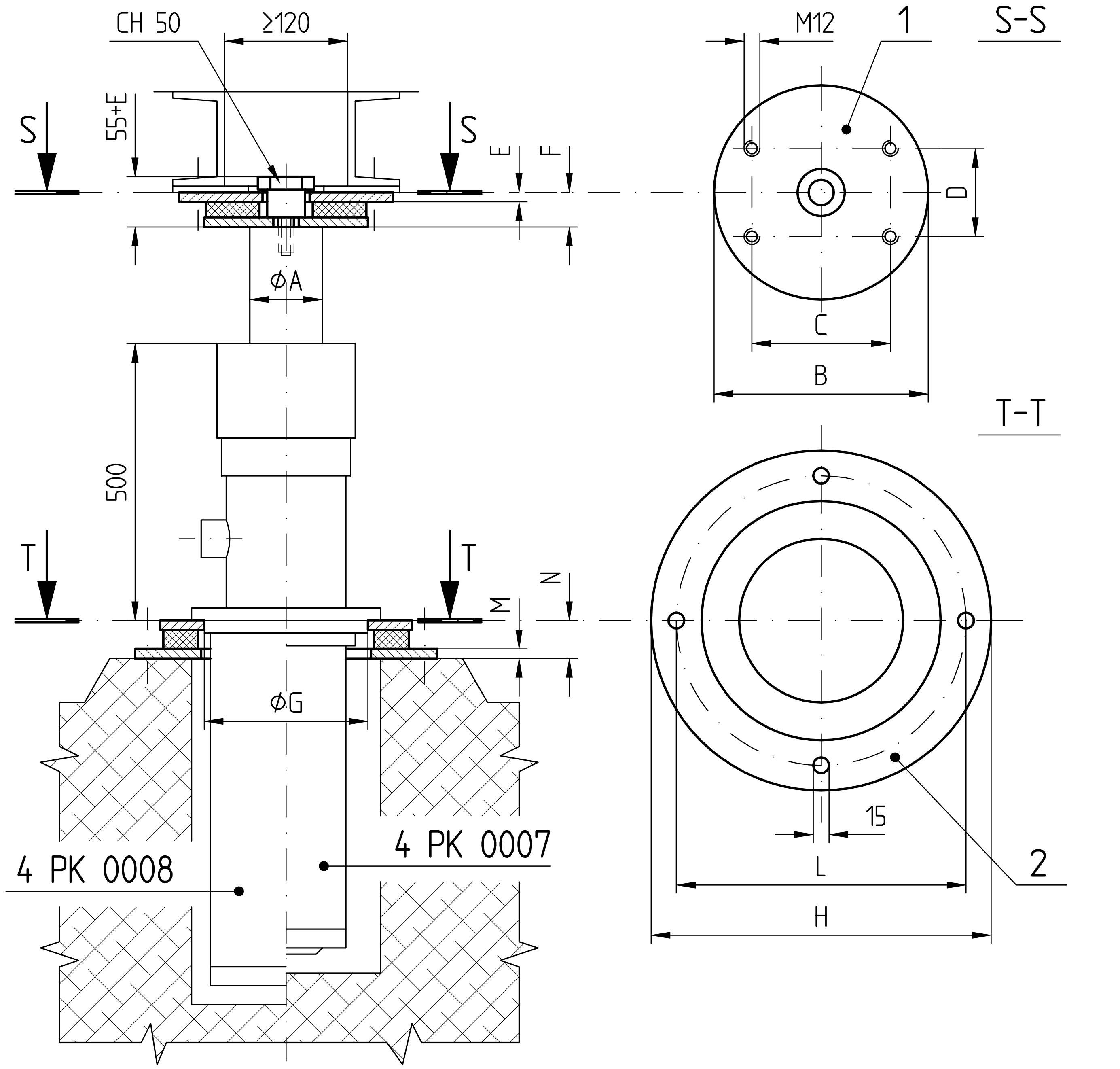
ATTACCHI ELASTICI PER PISTONI 4PK E 3PL
ELASTIC CONNECTIONS FOR 4PK AND 3PL CYLINDERS
ELASTISCHE ANLENKUNGEN FÜR 4PK UND 3PL ZYLINDER
ATTAQUES ELASTIQUES POUR VERINS 4PK END 3PL



4 PK 3 PL/2 3 PL/3

1	ØA	ØA	ØA	B	C	D	E	F
3 PJ 0554	50÷70	35/2÷50/2	35/3÷42/3	210	127	127	10	40
3 PJ 0555	80÷100	63/2÷/70/2	50/3÷63/3	270	200	120	10	40
3 PJ 0556	110÷130	85/2÷100/2	70/3÷85/3	270	200	120	10	45
3 PJ 0557	140 150	120/2		270	200	120	10	45
3 PJ 0558	160÷185	140/2	100/3 ÷120/3	400	280	200	15	55



A	50 - 70	80 - 100	110 - 130	140 150	160 - 185
B	210	270	270	270	400
C	127	200	200	200	280
D	127	120	120	120	200
E	10	10	10	10	15
F	40	40	45	45	55
G	140	170	200	230	280
H	280	365	380	420	500
L	250	330	350	390	470
M	10	10	15	15	15
N	40	40	55	55	55
1	3 PJ 0554	3 PJ 0555	3 PJ 0556	3 PJ 0557	3 PJ 0558
2	3 PJ 0111	3 PJ 0112	3 PJ 0113	3 PJ 0114	3 PJ 0115

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I | GB | D | F

C.O.A.M. S.p.A.
COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI

ATTACCHI E SUPPORTI ELASTICI
ELASTIC CONNECTIONS AND SUPPORTS
ELASTISCHE ANLENKUNGEN UND SUPPORTE
ATTAQUES ET SUPPORTS ELASTIQUES

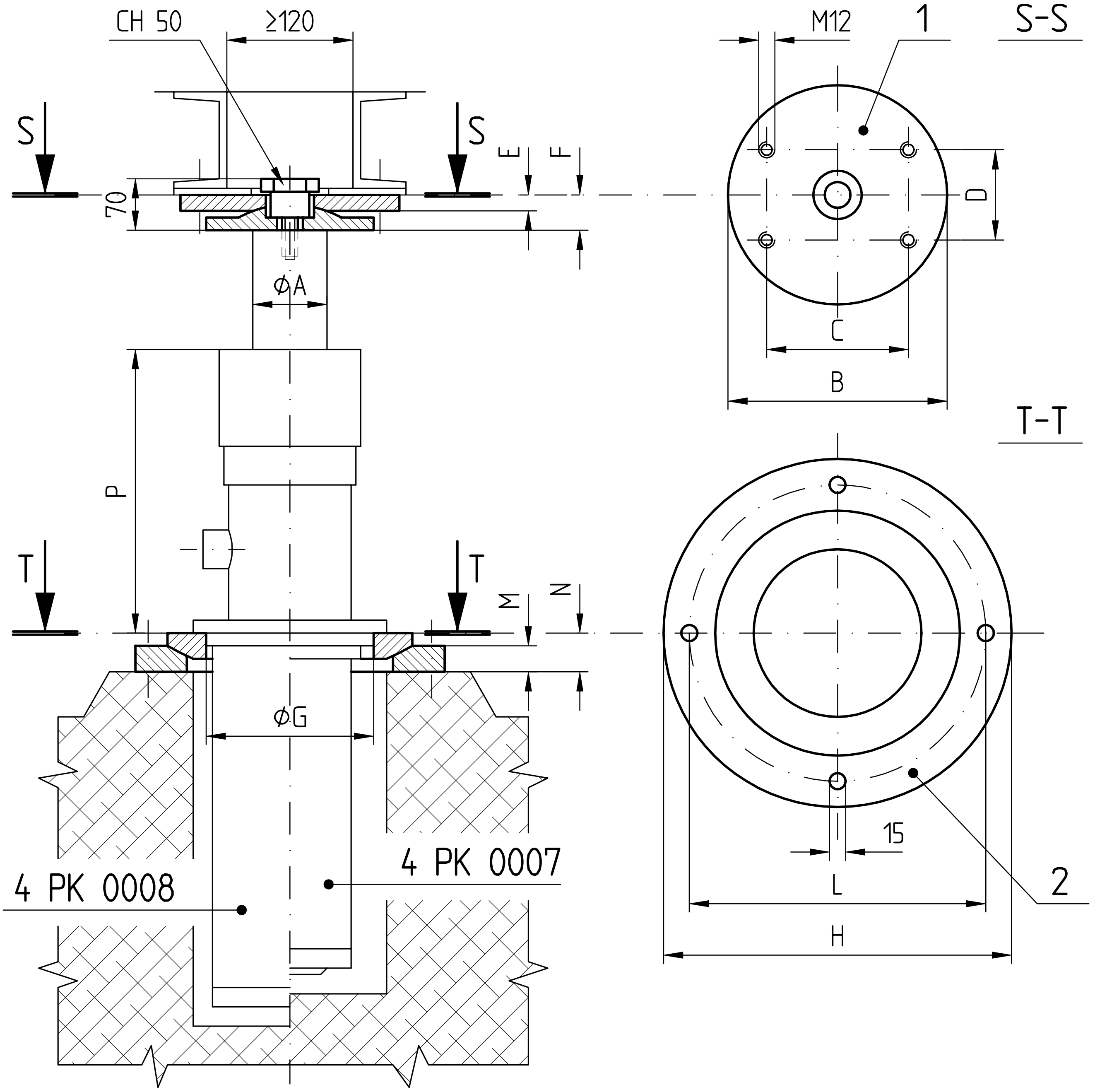
Disegnato	Paolo G.	13-12-1995
Controllato		
Nullaosta		

Sost. il: 2 PX 0186
Sost. dal:

DOCUMENTAZIONI TECNICHE 2 P X 0 2 4 2

Pag. 1 di 1

b) Mod. N° 0051 del 12-03-1996 P.G.

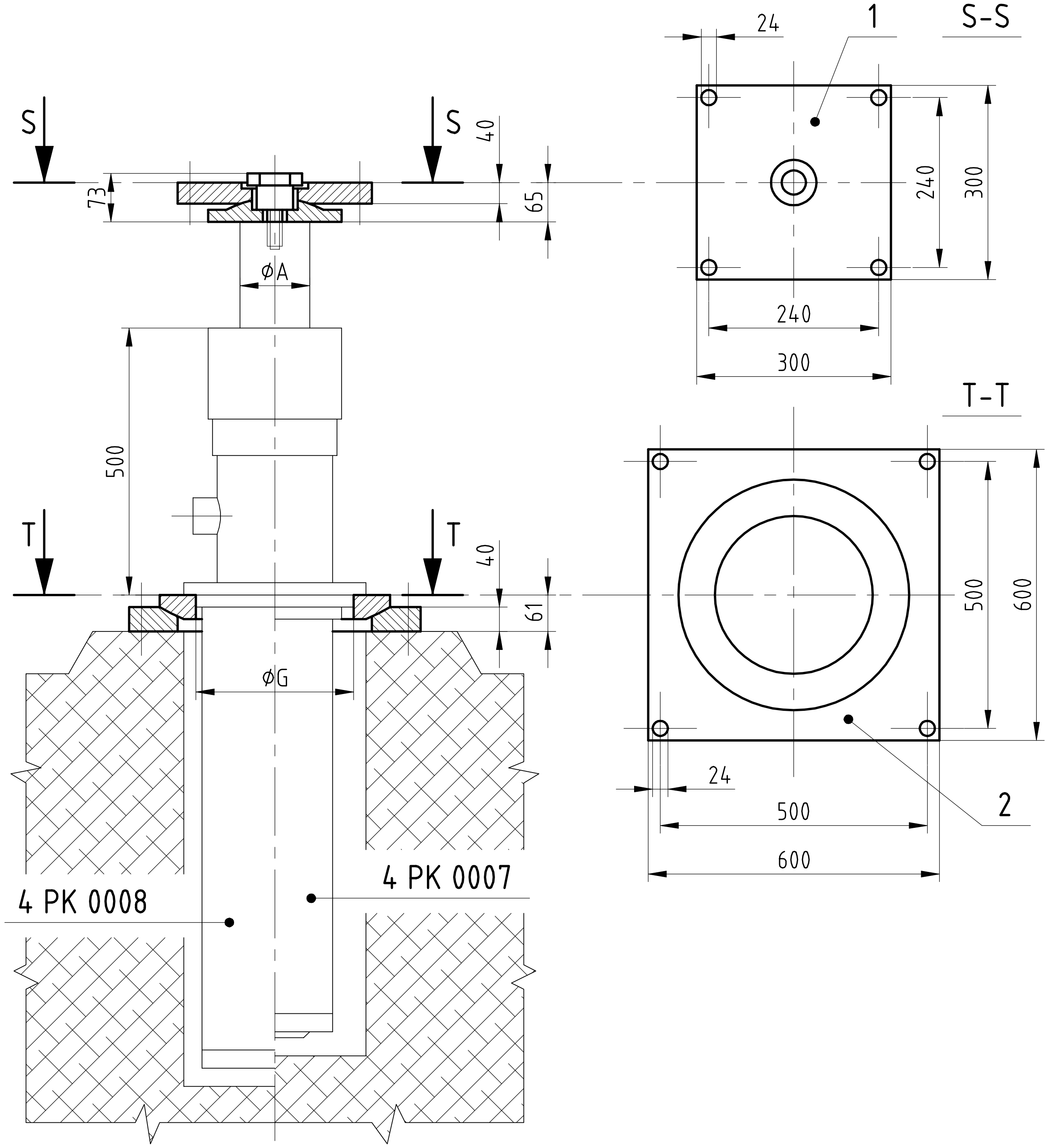


A	50 - 70	80 - 100	110 - 130	140 150	160 - 185	200 210	220 - 240	260 - 290
B	210	270	270	270	400	400	400	500
C	127	200	200	200	280	280	280	280
D	127	120	120	120	200	200	200	200
E	20	20	20	20	25	25	25	25
F	40	40	40	40	50	50	50	50
G	140	170	200	230	280	330	380	420
H	280	365	380	420	500	670	670	730
L	250	330	350	390	470	570	570	630
M	22	22	30	30	38	65/34	65/34	80/39
N	40	40	50	50	60	75	75	85
P	500	500	500	500	500	600	600	600
1	3 PJ 0540	3 PJ 0541	3 PJ 0541	3 PJ 0541	3 PJ 0542	3 PJ 0543	3 PJ 0543	3 PJ 0544
2	3 PJ 0172	3 PJ 0173	3 PJ 0174	3 PJ 0075	3 PJ 0076	3 PJ 0077	3 PJ 0078	3 PJ 0079

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F	C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	ATTACCHI E SUPPORTI SFERICI SPHERICAL CONNECTIONS AND SUPPORTS SPHAERISCHE ANLENKUNGEN UND SUPPORTE ATTAQUES ET SUPPORTS SPHERIQUES	Disegnato	Paolo G.	13-12-1995
			Controllato		
			Nullaosta		
	Sost. il 2 PX 0241	DOCUMENTAZIONI TECNICHE	2 P X 0 2 4 1 a	Pag. 1	
	Sost. dal			di 1	

d) Mod. N° 0440 del 29-03-2010 P.G.



A	110 - 130	140 150	160 - 185	200 210
G	200	230	280	330
1	3 PJ 0520	3 PJ 0520	3 PJ 0521	3 PJ 0521
2	3 PJ 0562	3 PJ 0525	3 PJ 0526	3 PJ 0527

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

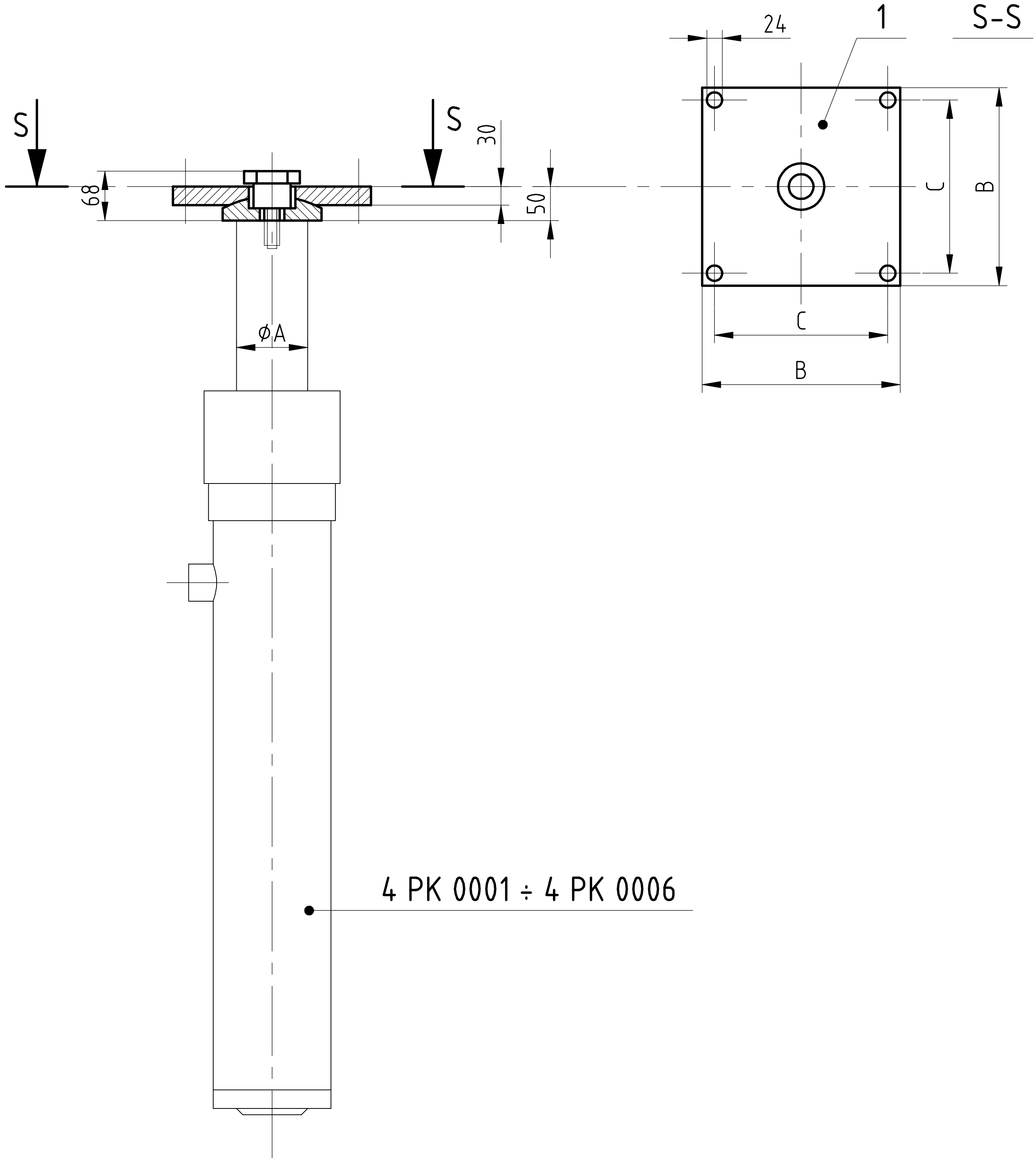
COAM
COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI

ATTACCHI E SUPPORTI SFERICI
SPHERICAL CONNECTIONS AND SUPPORTS
SPHAERISCHE ANLENKUNGEN UND SUPPORTE
ATTAQUES ET SUPPORTS SPHERIQUES

Disegnato	Paolo G.	05-11-1992	
Controllato			
Nullaosta			
Sost. il	2 PX 0199c	DOCUMENTAZIONI TECNICHE 2 P X 0 1 9 9 d	Pag. 1
Sost. dal			di 2

I GB D F

d) Mod. N° 0440 del 29-03-2010 P.G.



A	85 - 110	120 - 160
B	190	235
C	140	185
1	3 PJ 0532	3 PJ 0516

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

COAM
COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI

ATTACCHI E SUPPORTI SFERICI
SPHERICAL CONNECTIONS AND SUPPORTS
SPHAERISCHE ANLENKUNGEN UND SUPPORTE
ATTAQUES ET SUPPORTS SPHERIQUES

Disegnato	Paolo G.	05-11-1992
Controllato		
Nullaosta		

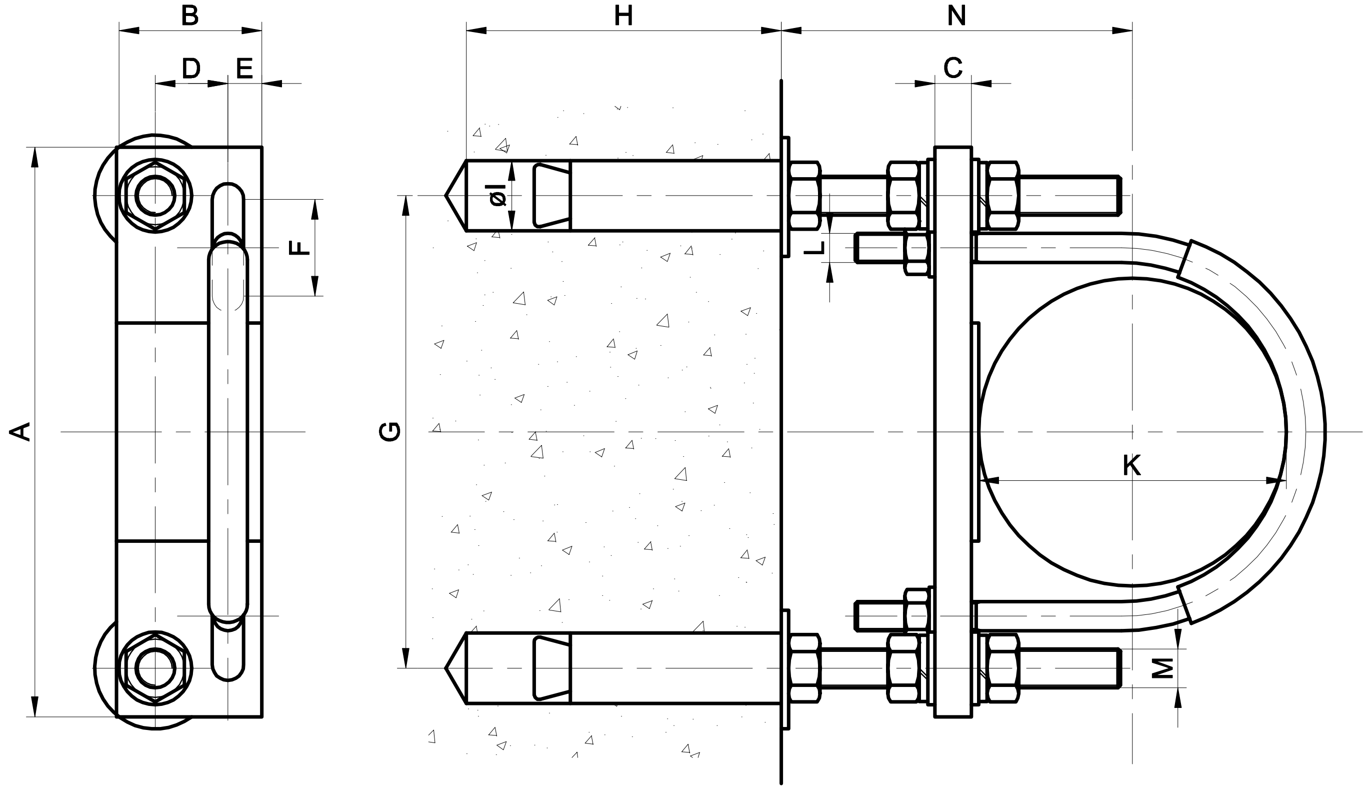
Sost. il	2 PX 0199c
Sost. dal	

DOCUMENTAZIONI TECNICHE 2 P X 0 1 9 9 d

I GB D F

C. O. A. M. srl - via noalese sud 66 30030 Pianiga VE. Tel +39 041 468 966
info@ coam- spa. com   www. coam- spa. com

STAFFA FISSAGGIO CILINDRO
CYLINDER FIXING CLAMP
ZYLINDER BEFESTIGUNGSCHELLE
BRIDE DE FIXATION POUR VERIN



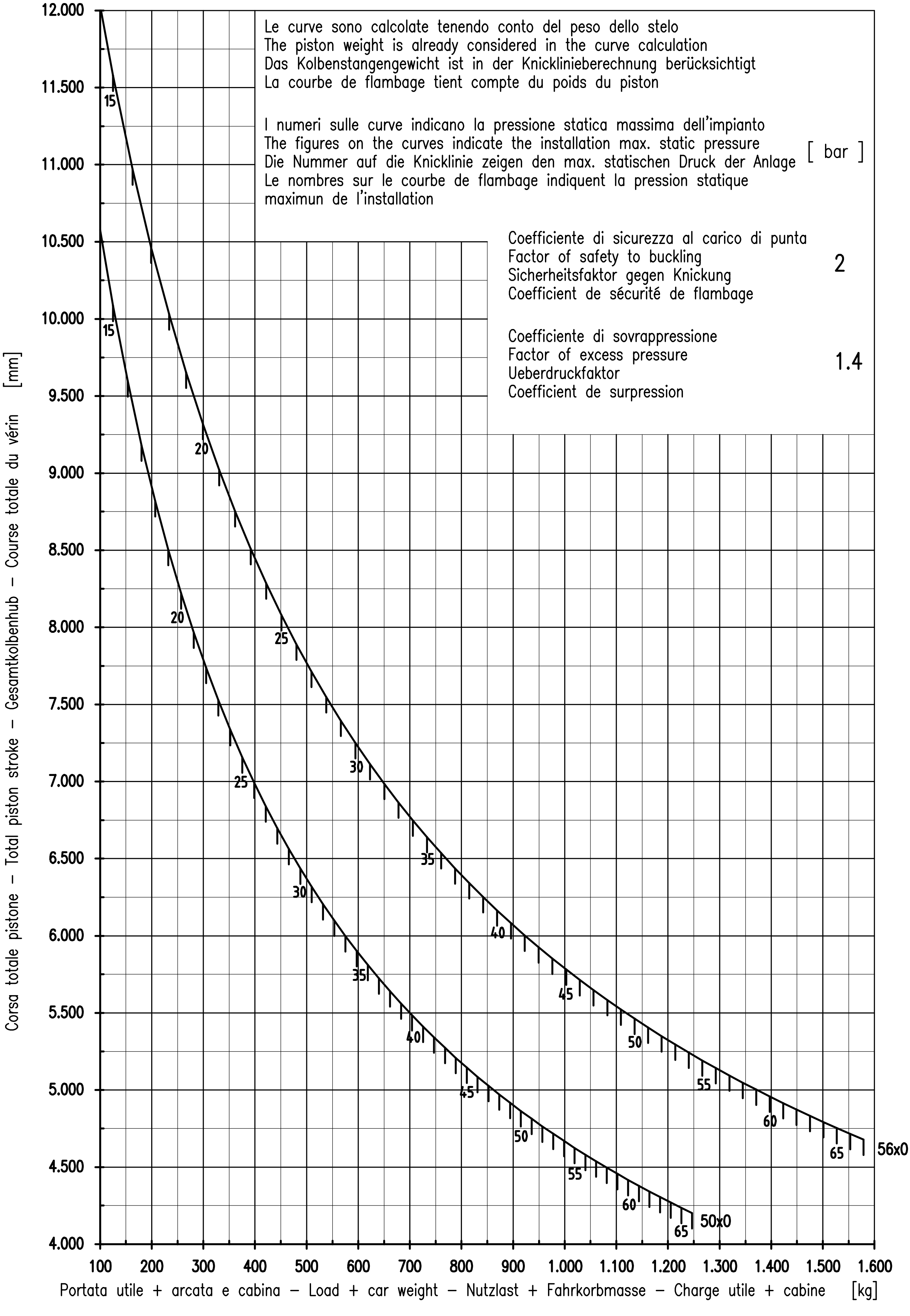
TIPO TYPE	A	B	C	D	E	F	G	H	I	K min.	K max.	L	M	N min.	N max
3 PA 0879	160	60	10	30	15	20	120	90	ø20	ø 65	ø 90	M10	M12	100	130
3 PA 0880	180	60	15	30	15	25	140	90	ø20	ø 95	ø102	M12	M12	120	150
3 PA 0881	195	60	15	30	15	25	155	90	ø20	ø108	ø115	M12	M12	120	150
3 PA 0882	235	60	15	30	14	40	195	110	ø25	ø120	ø140	M12	M16	145	180
3 PA 0883	260	60	15	30	14	40	220	110	ø25	ø145	ø168	M12	M16	170	200
3 PA 0884	340	80	20	40	18	45	290	170	ø36	ø175	ø220	M16	M20	205	235
3 PA 0885	390	80	20	40	18	45	340	170	ø36	ø240	ø274	M16	M20	205	235
3 PA 0886	480	90	20	45	20	50	420	170	ø36	ø298	ø324	M20	M20	230	260
3 PA 0887	500	90	20	45	20	50	440	170	ø36	ø356		M20	M20	275	305
3 PA 0888	540	90	20	45	20	50	480	170	ø36	ø394		M20	M20	280	310
3 PA 0889	600	90	20	45	20	50	540	170	ø36	ø419		M20	M20	320	350

TIPO TYPE	Pistoni - Cylinders Zylinder - Vérin 4 PK	Pistoni - Cylinders Zylinder - Vérin 3 PL	
3 PA 0879	ø35 - ø42 - ø50	ø35/2 RS - ø42/2 RS	
3 PA 0880	ø56 -ø60 - ø63	ø50/2 RS	ø35/3 RS
3 PA 0881	ø70 - ø80		
3 PA 0882	ø85 - ø90 - ø95 - ø100	ø63/2 RS - ø70/2 RS	ø42/3 RS
3 PA 0883	ø110 - ø120 - ø125 - ø130	ø85/2 RS	ø50/3 RS
3 PA 0884	ø140 - ø50 - ø160	ø100/2 RS	ø63/3 RS - ø70/3 RS
3 PA 0885	ø170 - ø180 - ø185 - ø200 - ø210	ø120/2 RS - ø140/2 RS	ø85/3 RS
3 PA 0886	ø220 - ø230 - ø240	ø170/2 RS	ø100/3 RS
3 PA 0887	ø260 - ø280 - ø290		ø120/3 RS
3 PA 0888		ø200/2 RS	
3 PA 0889			ø140/3 RS

Con riserva di modifica / Subject to change
Aenderungen vorbehalten / Sous réserve de modification

EN 81.2

Pistone – Piston – Kolben – Vérin ⌀50x0 ⌀56x0



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ⌀50-56	Disegnato Paolo G.	05-06-2001
			Controllato	
			Nullaosta	
Sost. il 2 PX 0214	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 1	
Sost. dal			di 21	

I GB D F

EN 81.2

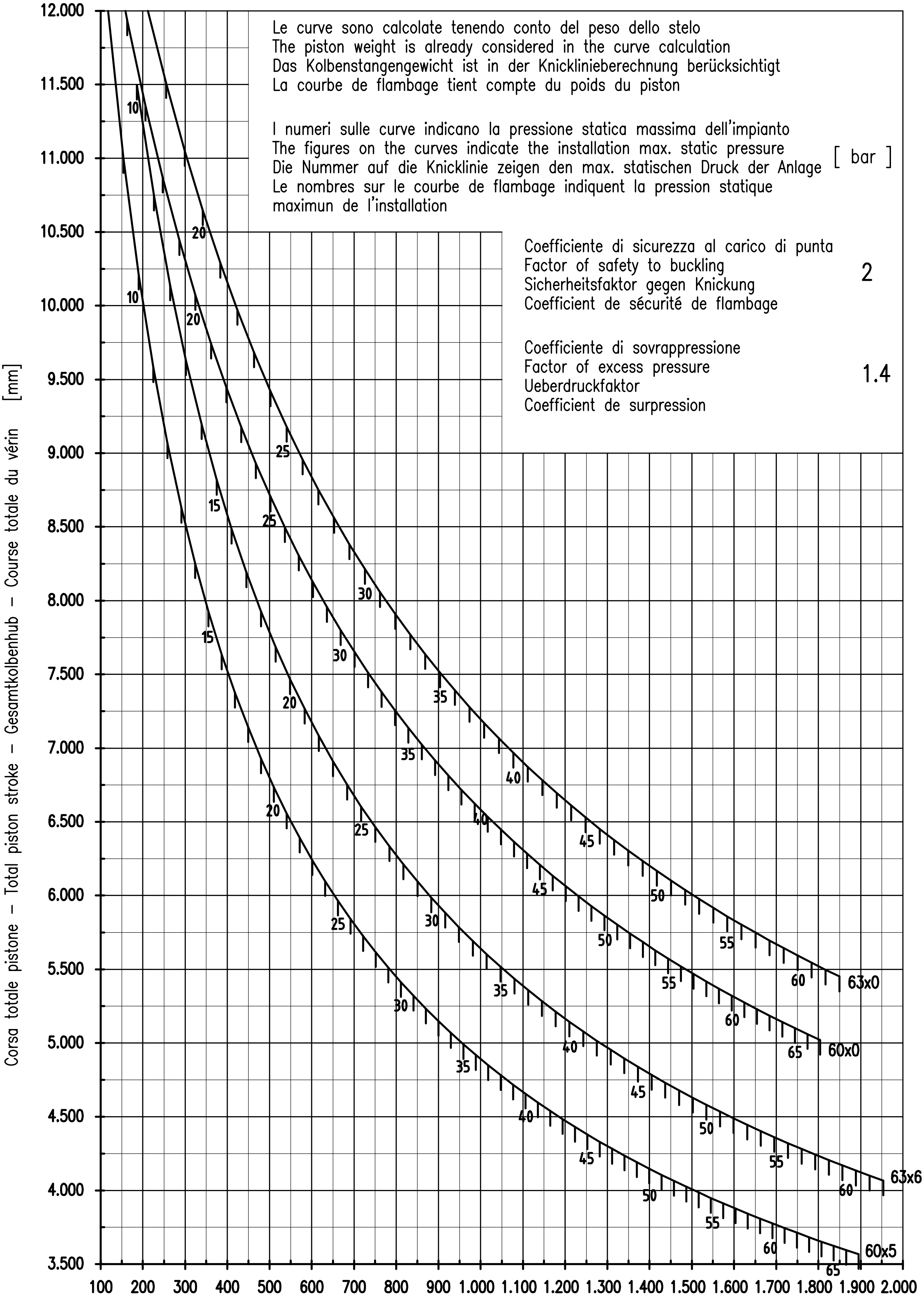
Pistone – Piston – Kolben – Vérin ø60x0 / 5 ø63x0 / 6

Le curve sono calcolate tenendo conto del peso dello stelo
The piston weight is already considered in the curve calculation
Das Kolbenstangengewicht ist in der Knicklinieberechnung berücksichtigt
La courbe de flambage tient compte du poids du piston

I numeri sulle curve indicano la pressione statica massima dell'impianto
The figures on the curves indicate the installation max. static pressure
Die Nummer auf die Knicklinie zeigen den max. statischen Druck der Anlage [bar]
Le nombres sur le courbe de flambage indiquent la pression statique maximun de l'installation

Coefficiente di sicurezza al carico di punta
Factor of safety to buckling
Sicherheitsfaktor gegen Knickung
Coefficient de sécurité de flambage
2

Coefficiente di sovrappressione
Factor of excess pressure
Ueberdruckfaktor
Coefficient de surpression
1.4



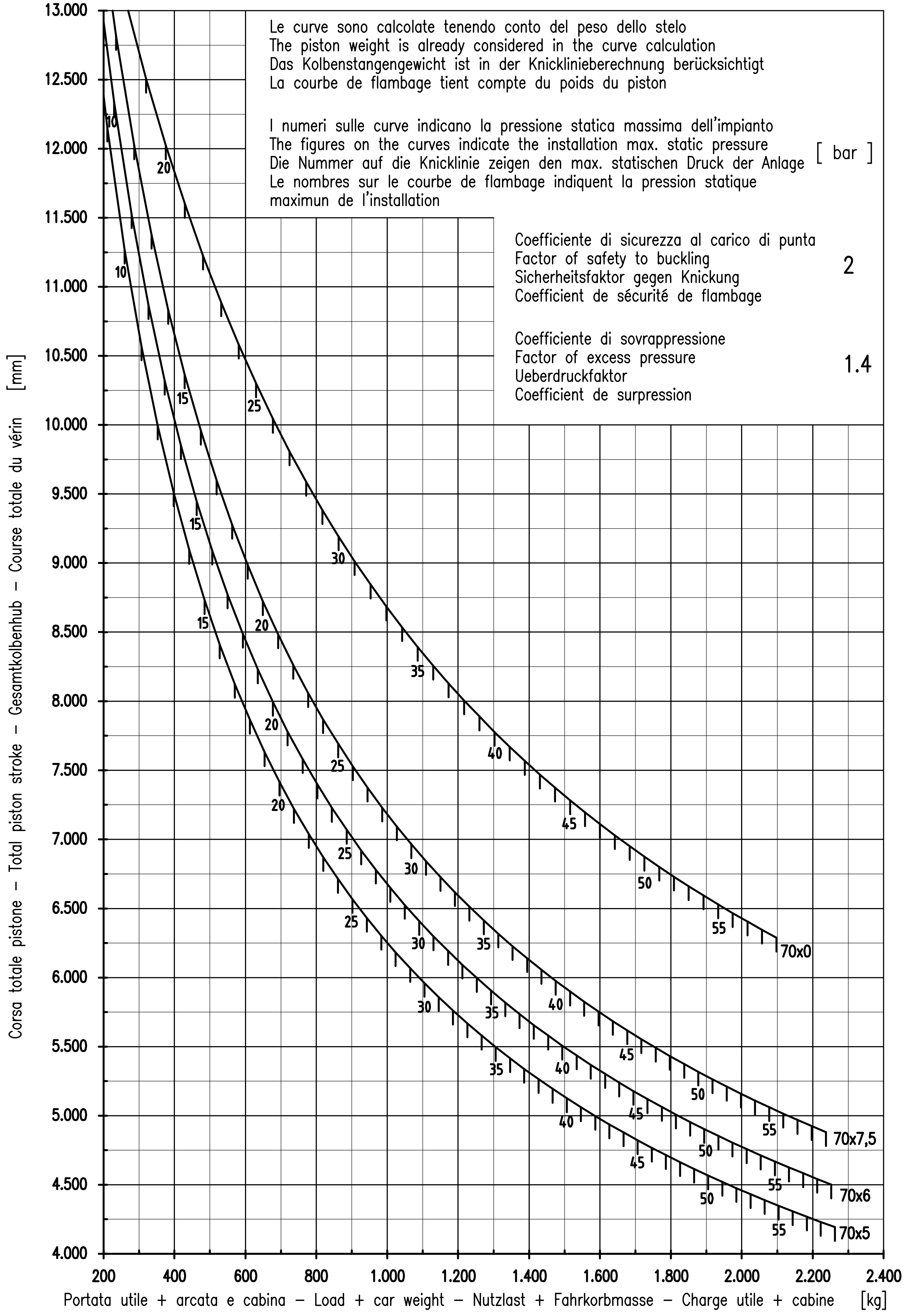
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ø60-63	Disegnato Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il 2 PX 0214 Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 2 di 21

I GB D F

EN 81.2

Pistone – Piston – Kolben – Vérin ø70x0 / 5 / 6 /7.5



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F	C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ø70	Disegnato Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il 2 PX 0214 Sost. dal		DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 3 di 21

EN 81.2

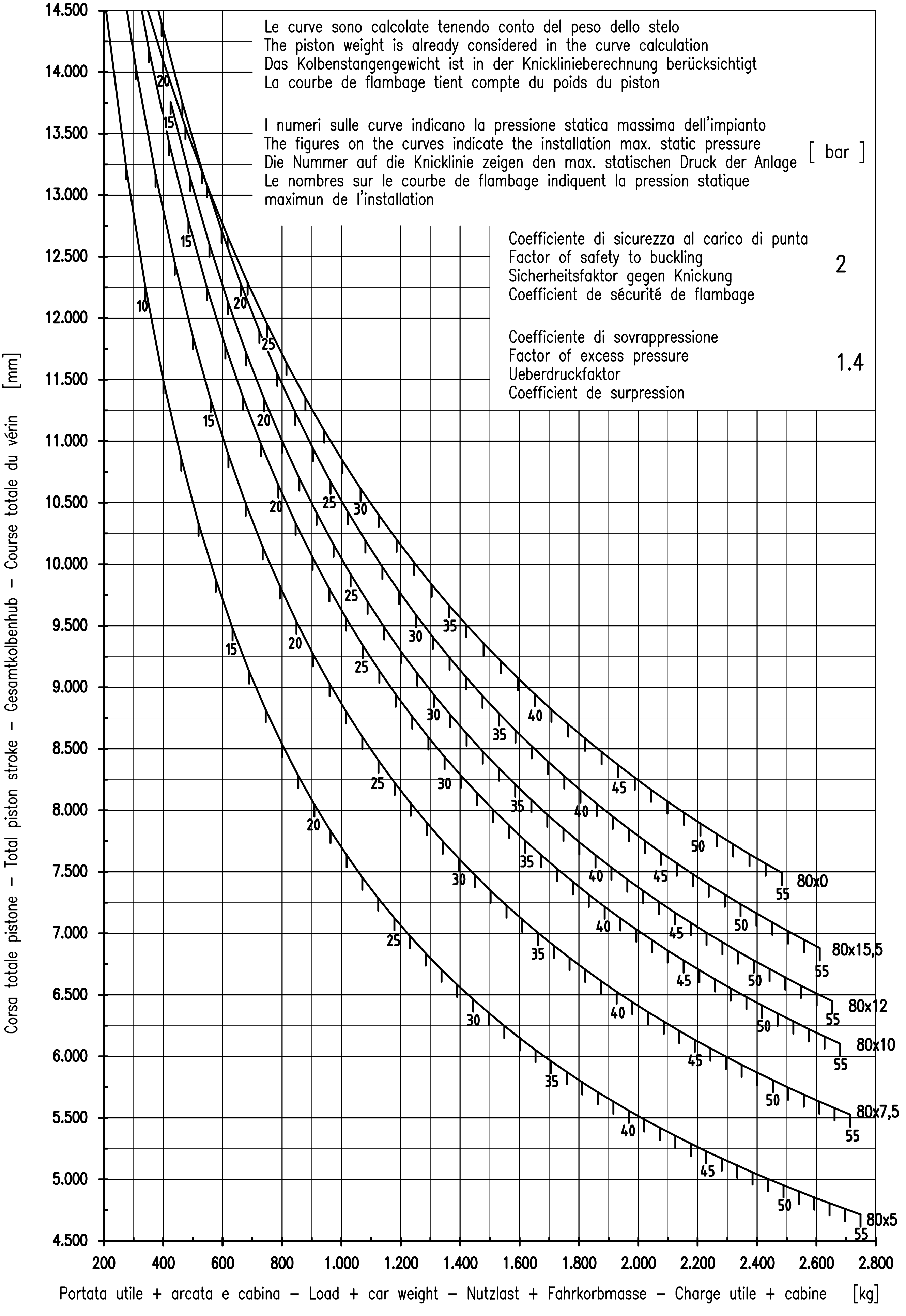
Pistone – Piston – Kolben – Vérin Ø80x0 / 5 / 7.5 / 10 / 12 / 15.5

Le curve sono calcolate tenendo conto del peso dello stelo
The piston weight is already considered in the curve calculation
Das Kolbenstangengewicht ist in der Knicklinieberechnung berücksichtigt
La courbe de flambage tient compte du poids du piston

I numeri sulle curve indicano la pressione statica massima dell'impianto
The figures on the curves indicate the installation max. static pressure
Die Nummer auf die Knicklinie zeigen den max. statischen Druck der Anlage [bar]
Le nombres sur le courbe de flambage indiquent la pression statique maximun de l'installation

Coefficiente di sicurezza al carico di punta
Factor of safety to buckling
Sicherheitsfaktor gegen Knickung
Coefficient de sécurité de flambage
2

Coefficiente di sovrappressione
Factor of excess pressure
Ueberdruckfaktor
Coefficient de surpression
1.4

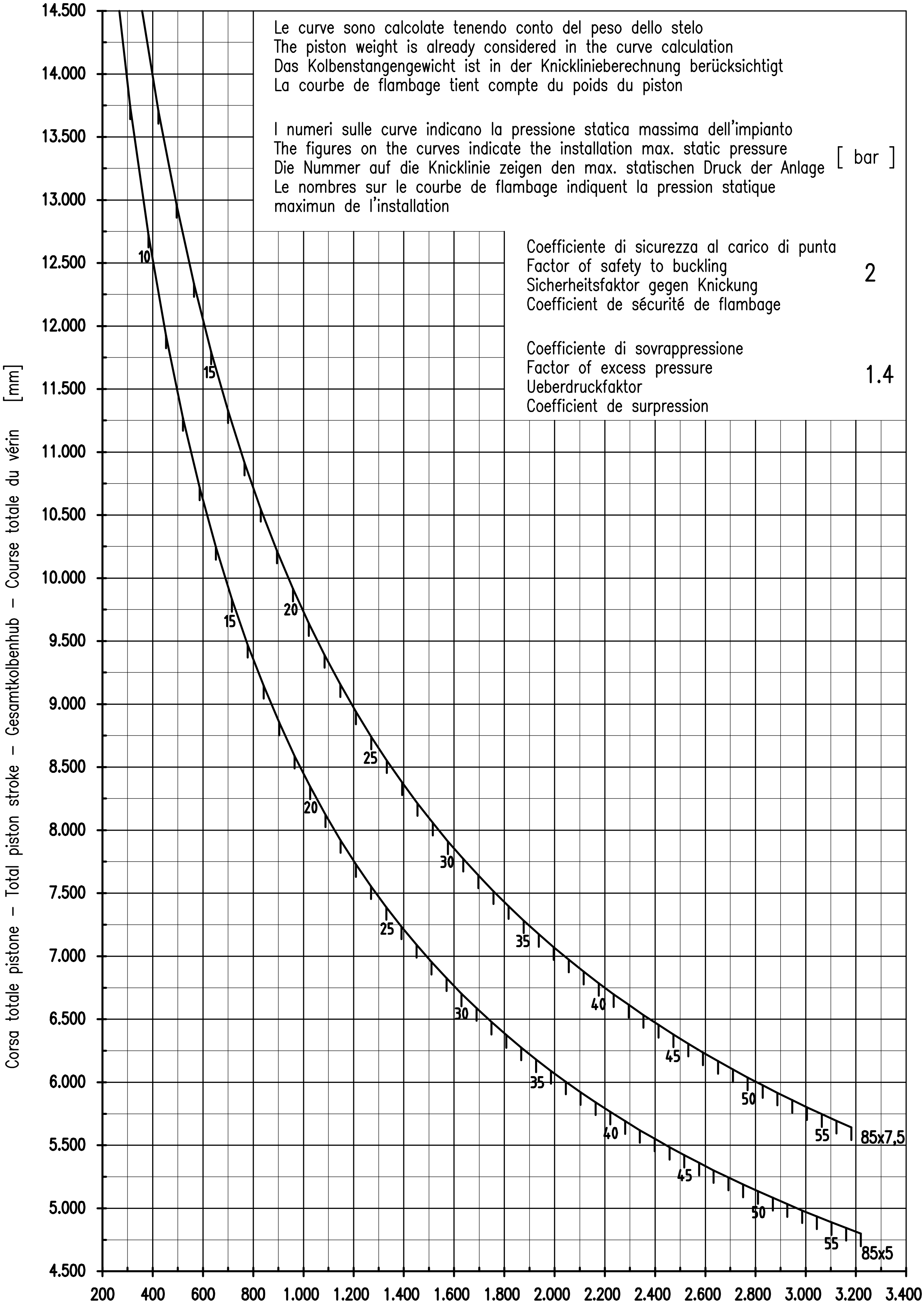


Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F	C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK Ø80	Disegnato Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il 2 PX 0214 Sost. dal	DOCUMENTAZIONI TECNICHE	2 PX 0291 /		Pag. 4 di 21

EN 81.2

Pistone – Piston – Kolben – Vérin Ø85x5 / 7.5



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK Ø85	Disegnato: Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il: 2 PX 0214 Sost. dal	DOCUMENTAZIONI TECNICHE	2 PX 0291 /	Pag. 5 di 21

I GB D F

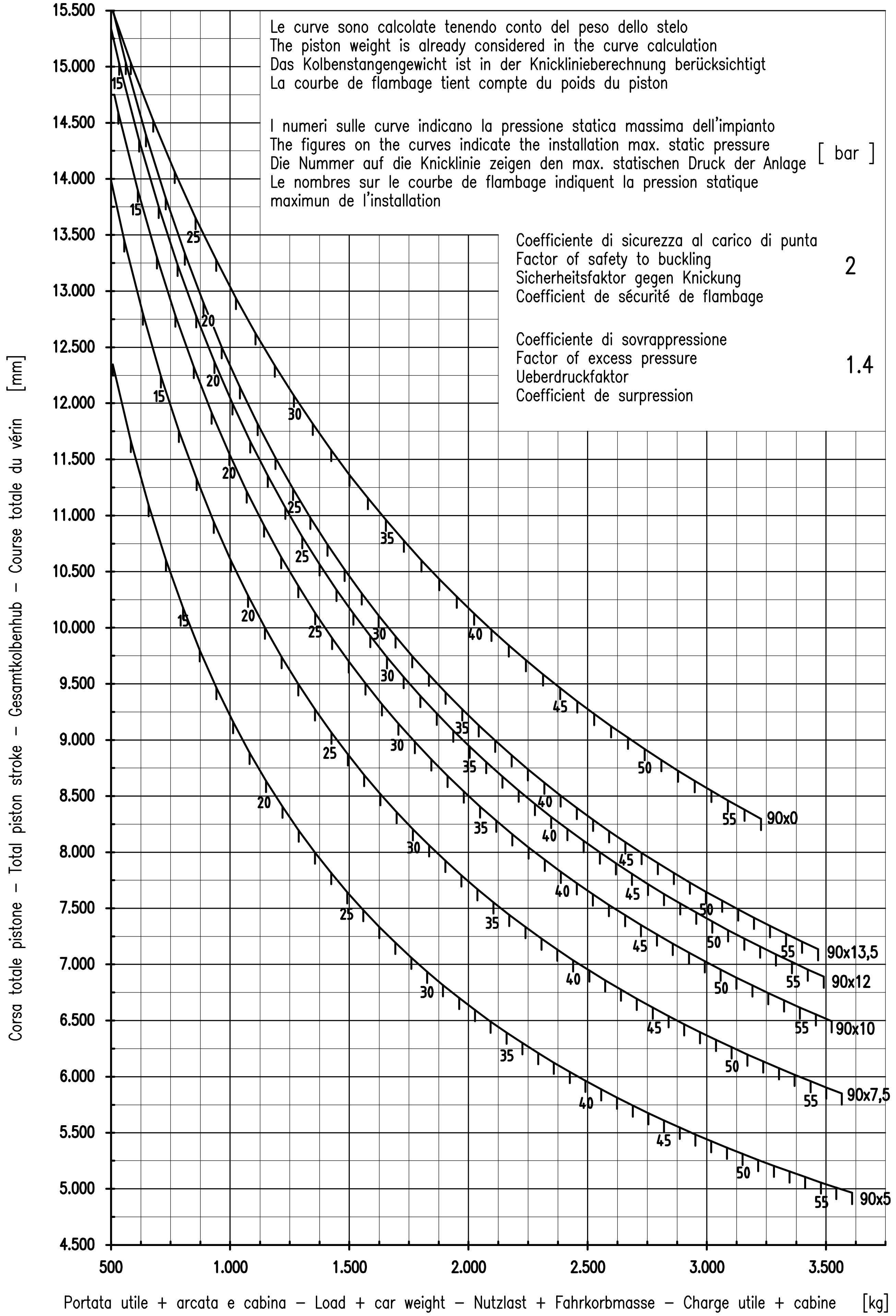
Pistone – Piston – Kolben – Vérin Ø90x0 / 5 / 7.5 / 10 / 12 / 13.5

Le curve sono calcolate tenendo conto del peso dello stelo
The piston weight is already considered in the curve calculation
Das Kolbenstangengewicht ist in der Knicklinieberechnung berücksichtigt
La courbe de flambage tient compte du poids du piston

I numeri sulle curve indicano la pressione statica massima dell'impianto
The figures on the curves indicate the installation max. static pressure
Die Nummer auf die Knicklinie zeigen den max. statischen Druck der Anlage
Le nombres sur le courbe de flambage indiquent la pression statique maximun de l'installation
[bar]

Coefficiente di sicurezza al carico di punta
Factor of safety to buckling
Sicherheitsfaktor gegen Knickung
Coefficient de sécurité de flambage
2

Coefficiente di sovrappressione
Factor of excess pressure
Ueberdruckfaktor
Coefficient de surpression
1.4



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK Ø90	Disegnato: Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il: 2 PX 0214 Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 6 di 21

I GB D F

EN 81.2

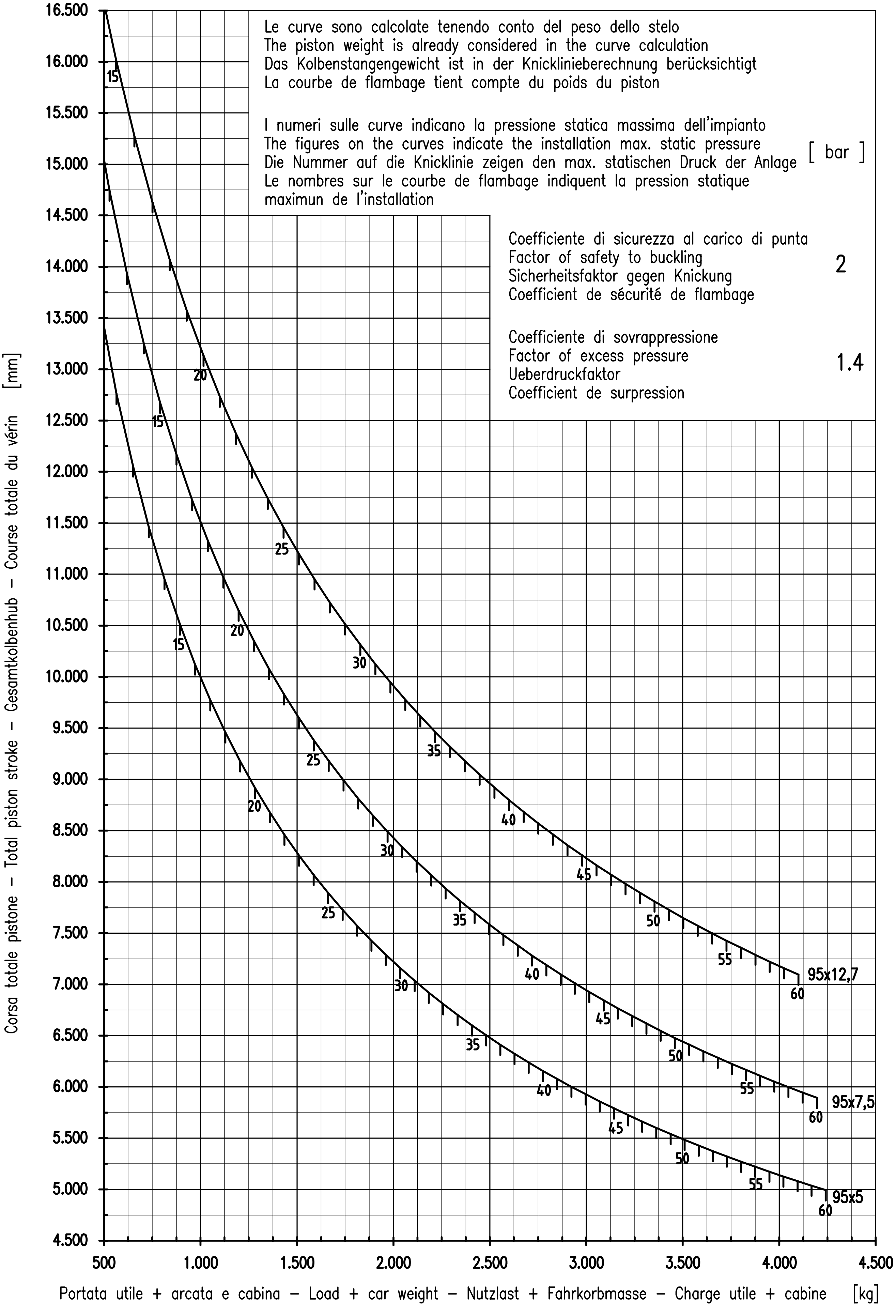
Pistone – Piston – Kolben – Vérin ø95x5 / 7.5 / 12.7

Le curve sono calcolate tenendo conto del peso dello stelo
The piston weight is already considered in the curve calculation
Das Kolbenstangengewicht ist in der Knicklinieberechnung berücksichtigt
La courbe de flambage tient compte du poids du piston

I numeri sulle curve indicano la pressione statica massima dell'impianto
The figures on the curves indicate the installation max. static pressure
Die Nummer auf die Knicklinie zeigen den max. statischen Druck der Anlage
Le nombres sur le courbe de flambage indiquent la pression statique maximun de l'installation
[bar]

Coefficiente di sicurezza al carico di punta
Factor of safety to buckling
Sicherheitsfaktor gegen Knickung
Coefficient de sécurité de flambage
2

Coefficiente di sovrappressione
Factor of excess pressure
Ueberdruckfaktor
Coefficient de surpression
1.4



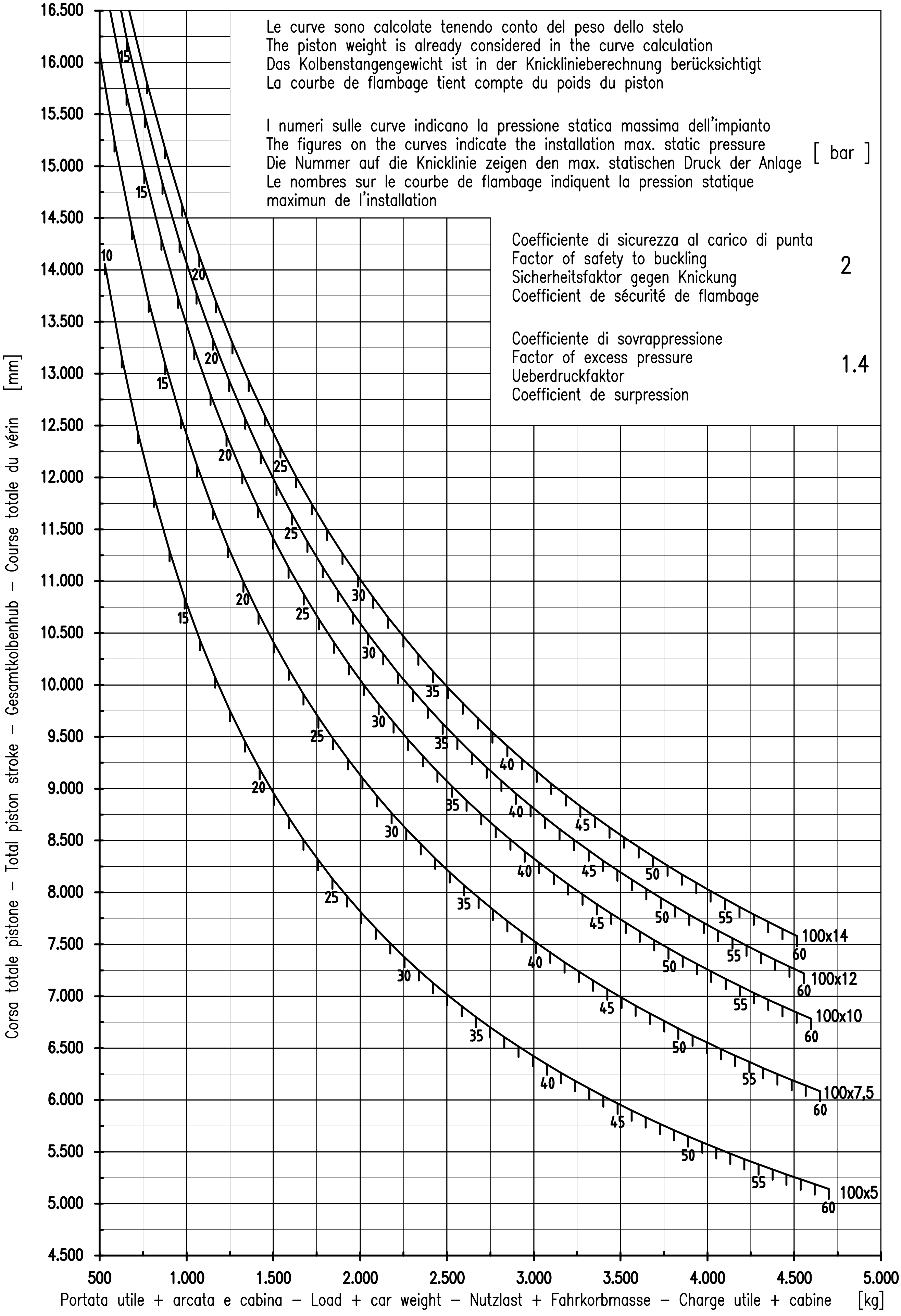
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ø95	Disegnato Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il 2 PX 0214 Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 7 di 21

I GB D F

EN 81.2

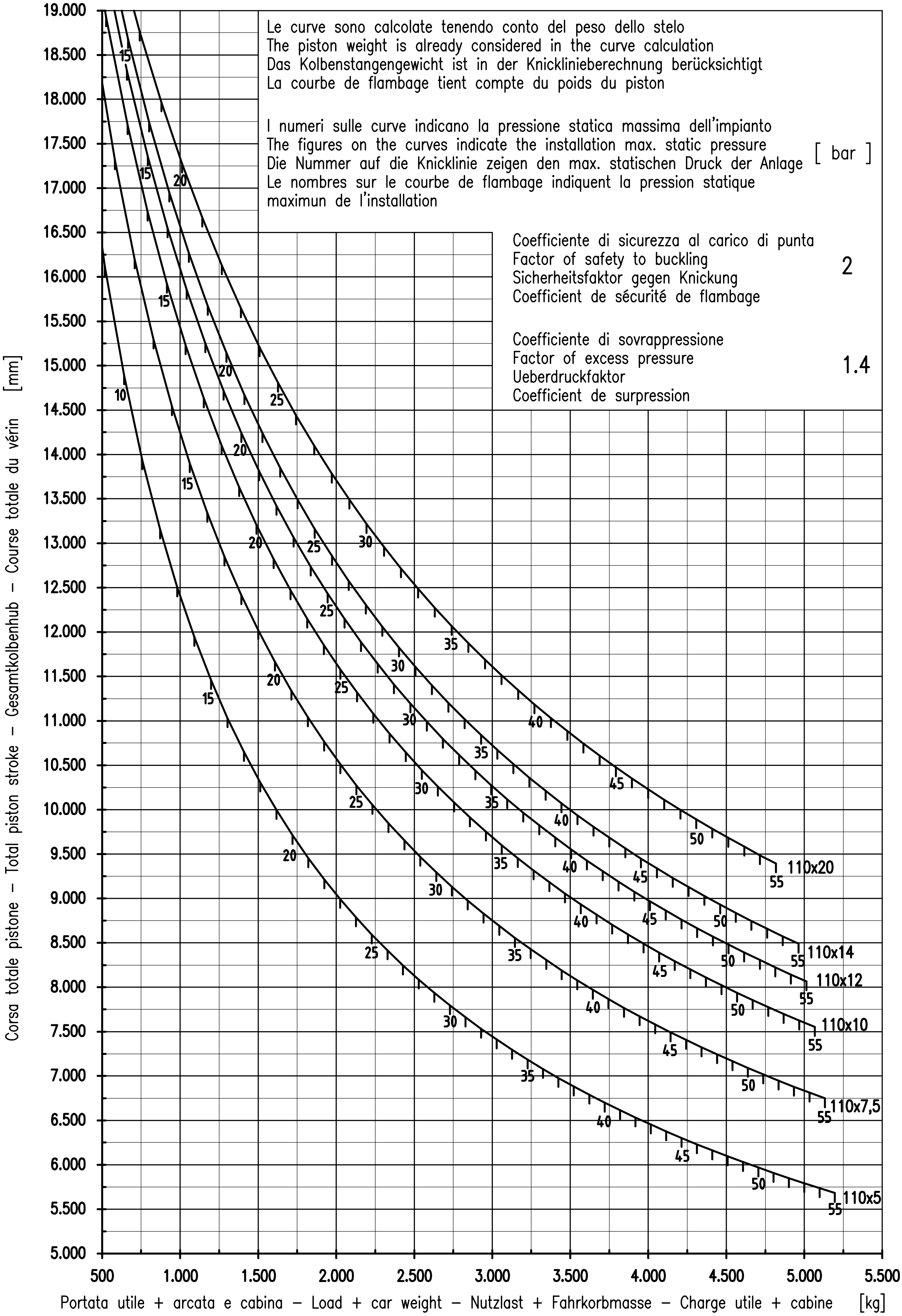
Pistone – Piston – Kolben – Vérin Ø100x5 / 7.5 / 10 / 12 / 14



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F	C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK Ø100
Disegnato	Paolo G.	05-06-2001	
Controllato			
Nullaosta			
Sost. il	2 PX 0214	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /
Sost. dal		Pag. 8	di 21

Pistone – Piston – Kolben – Vérin Ø110x5 / 7.5 / 10 / 12 / 14 / 20



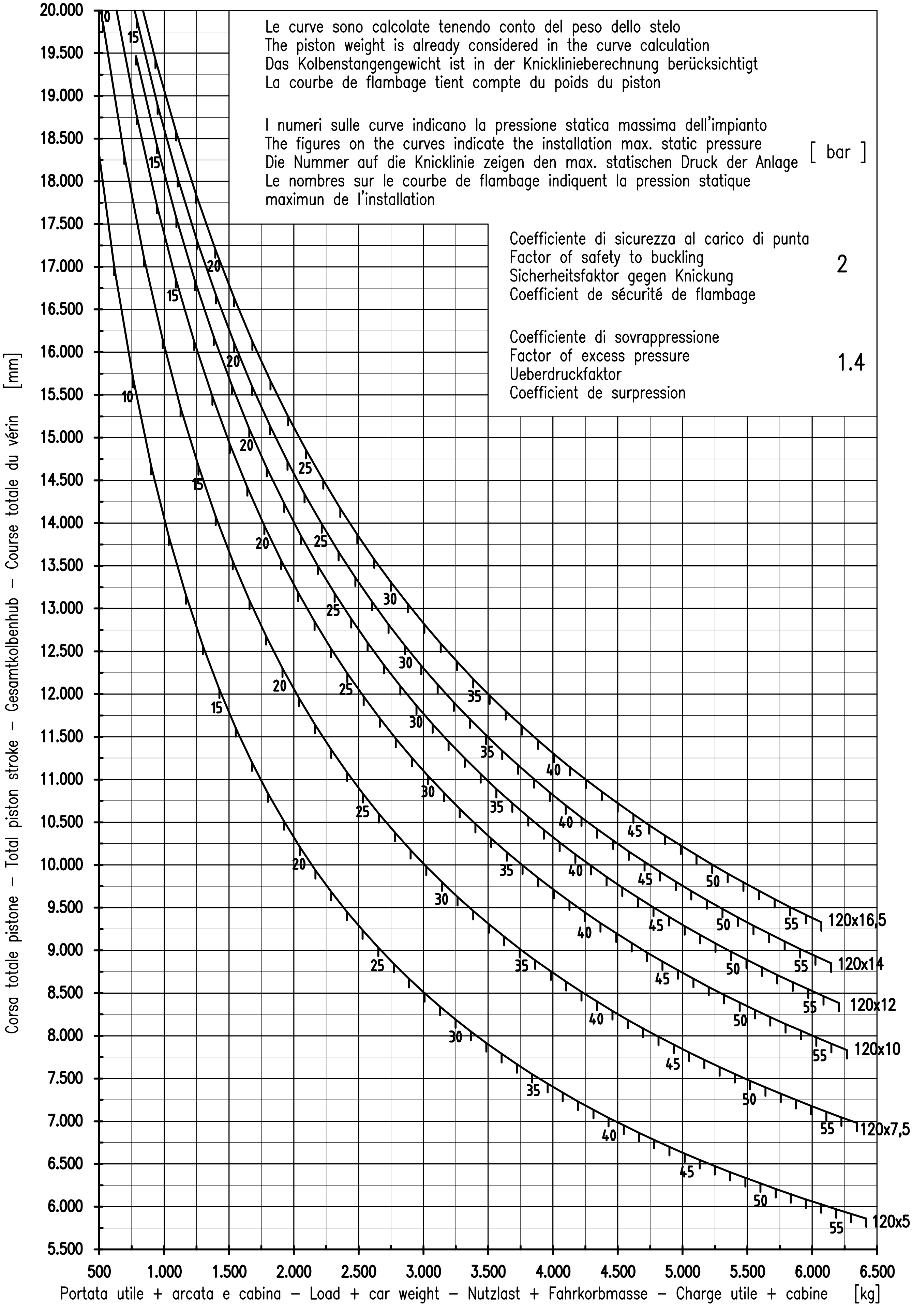
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE / MAX TRAVEL OF PISTON / MAX KOLBENHUB / COURSE MAX DU VERIN	4 PK Ø110	Disegnato: Paolo G.	05-06-2001
			Controllato	
			Nullaosta	
Sost. il: 2 PX 0214	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 9	
Sost. dal			di 21	

I GB D F

EN 81.2

Pistone – Piston – Kolben – Vérin ø120x5 / 7.5 / 10 / 12 / 14 / 16.5

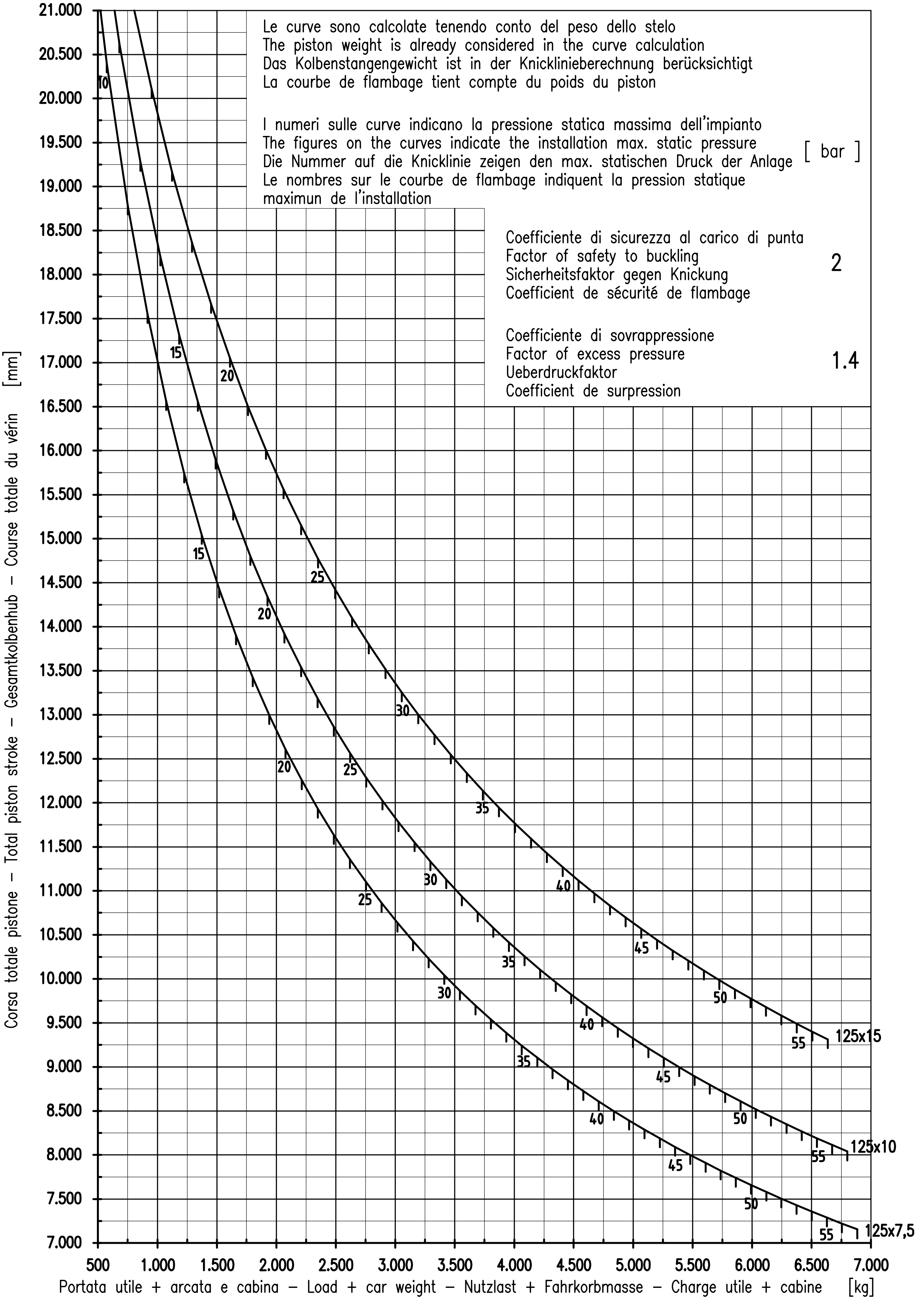


Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F	C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ø120	Disegnato Paolo G. 05-06-2001 Controllato Nullaosta
	Sost. il 2 PX 0214 Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 10 di 21

EN 81.2

Pistone – Piston – Kolben – Vérin Ø125x7.5 / 10 / 15

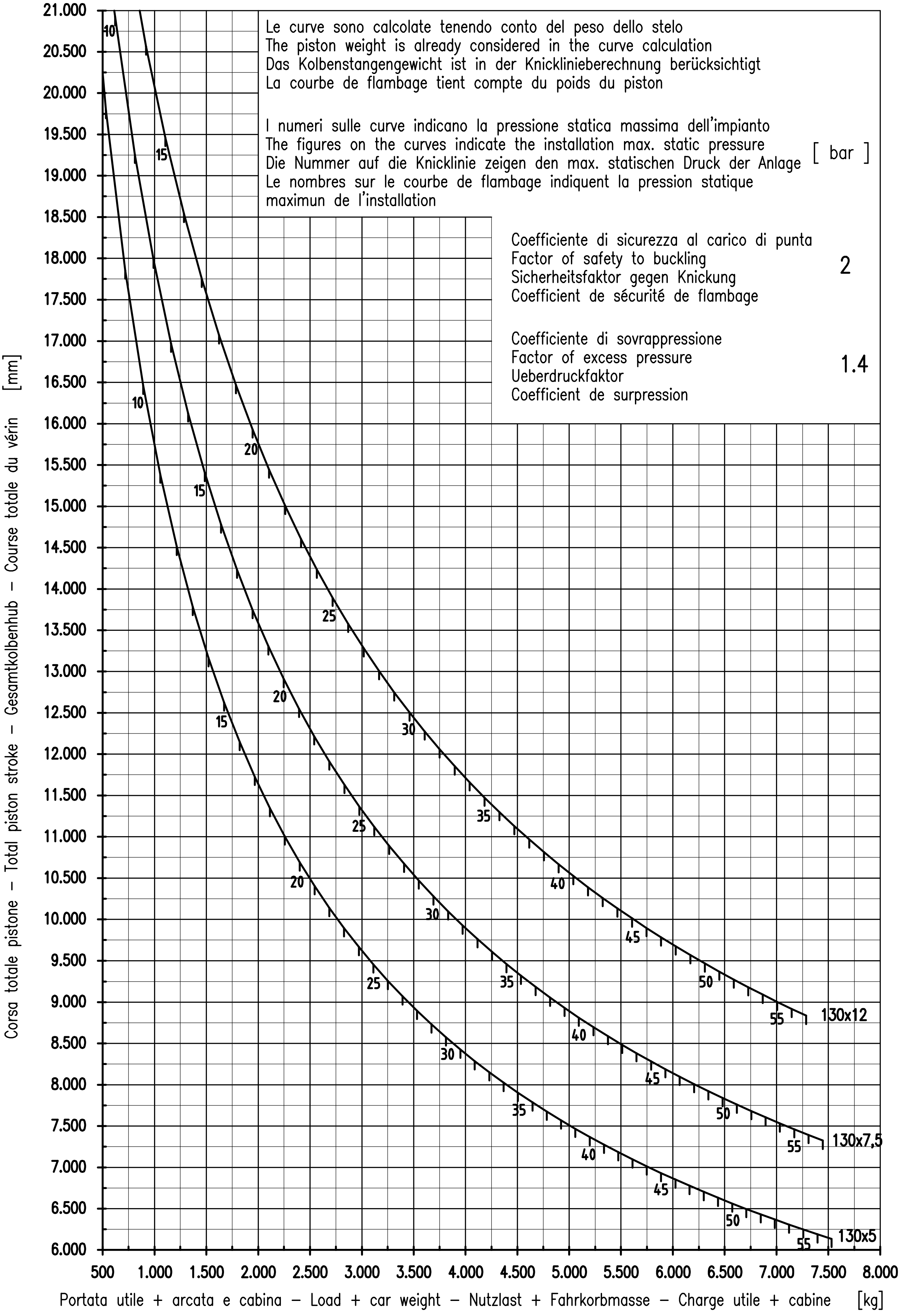


Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F	C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK Ø125	Disegnato: Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il 2 PX 0214 Sost. dal		DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 11 di 21

EN 81.2

Pistone – Piston – Kolben – Vérin ø130x5 / 7.5 / 12

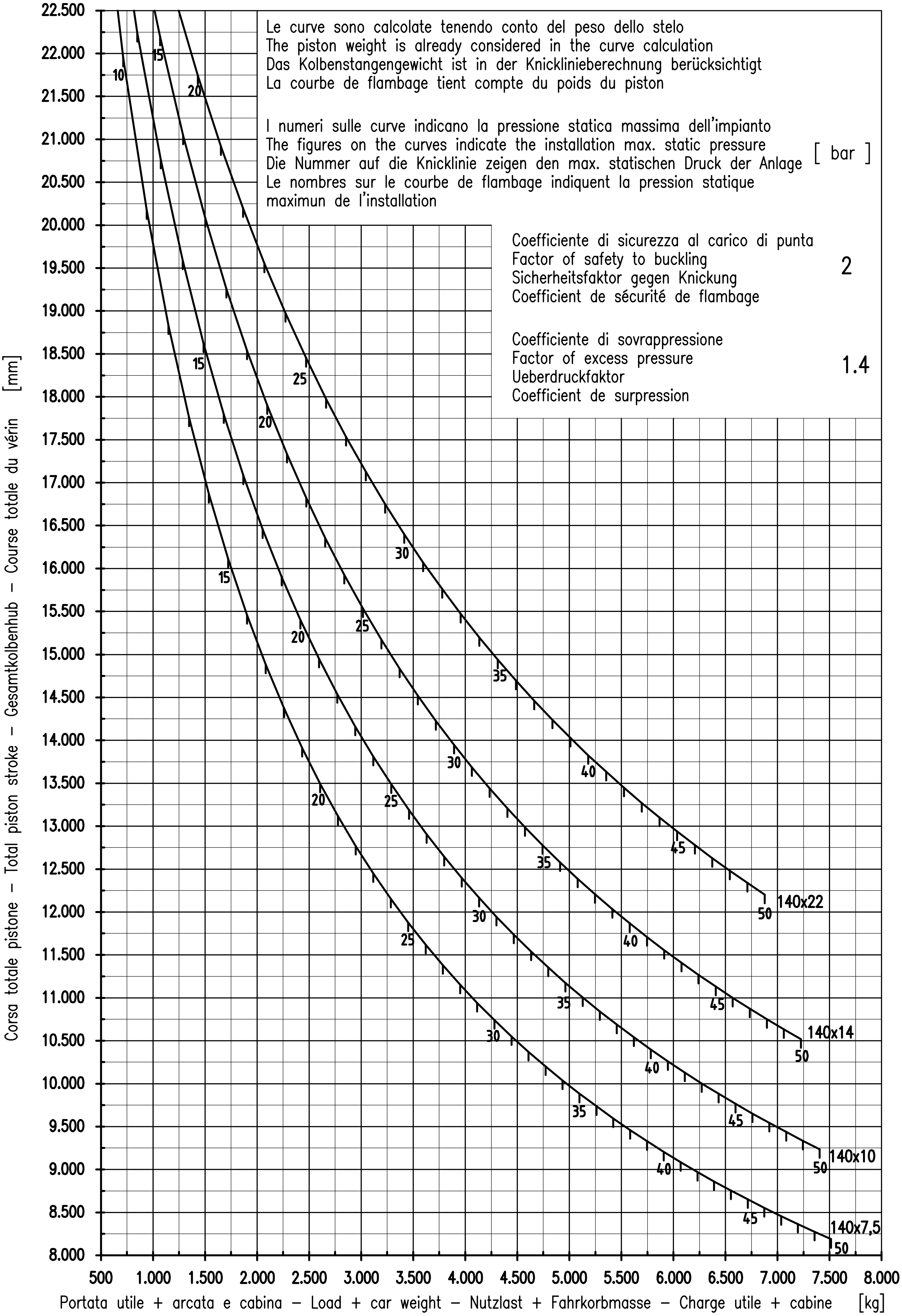


Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ø130	Disegnato: Paolo G.	05-06-2001
			Controllato	
			Nullaosta	
Sost. il: 2 PX 0214	DOCUMENTAZIONI TECNICHE	2 PX 0291 /	Pag. 12	
Sost. dal			di 21	

I GB D F

Pistone – Piston – Kolben – Vérin Ø140x7.5 / 10 / 14 / 22



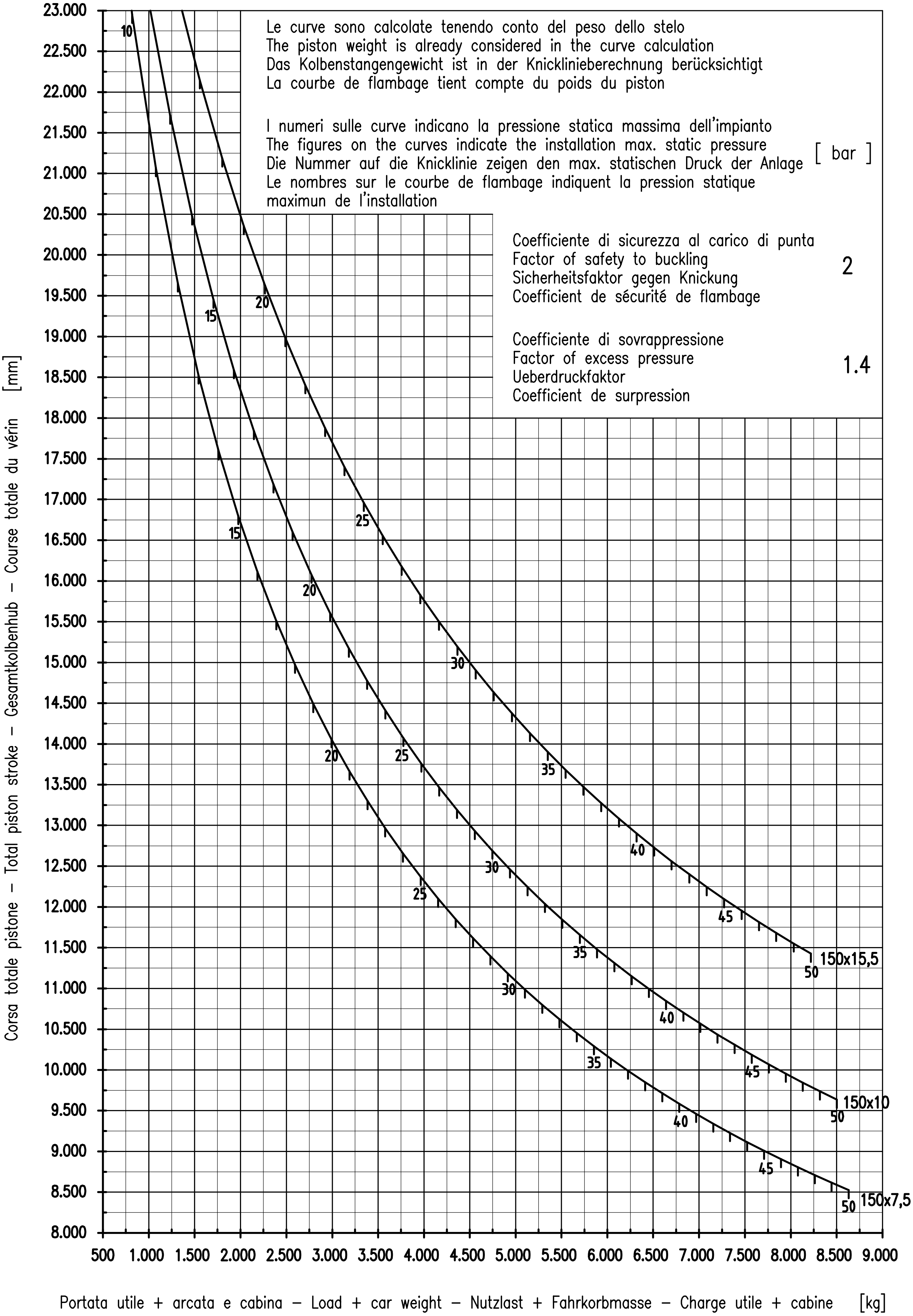
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK Ø140	Disegnato Paolo G.	05-06-2001
			Controllato	
			Nullaosta	
Sost. il 2 PX 0214	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 13	
Sost. dal			di 21	

I GB D F

EN 81.2

Pistone – Piston – Kolben – Vérin Ø150x7.5 / 10 / 15.5



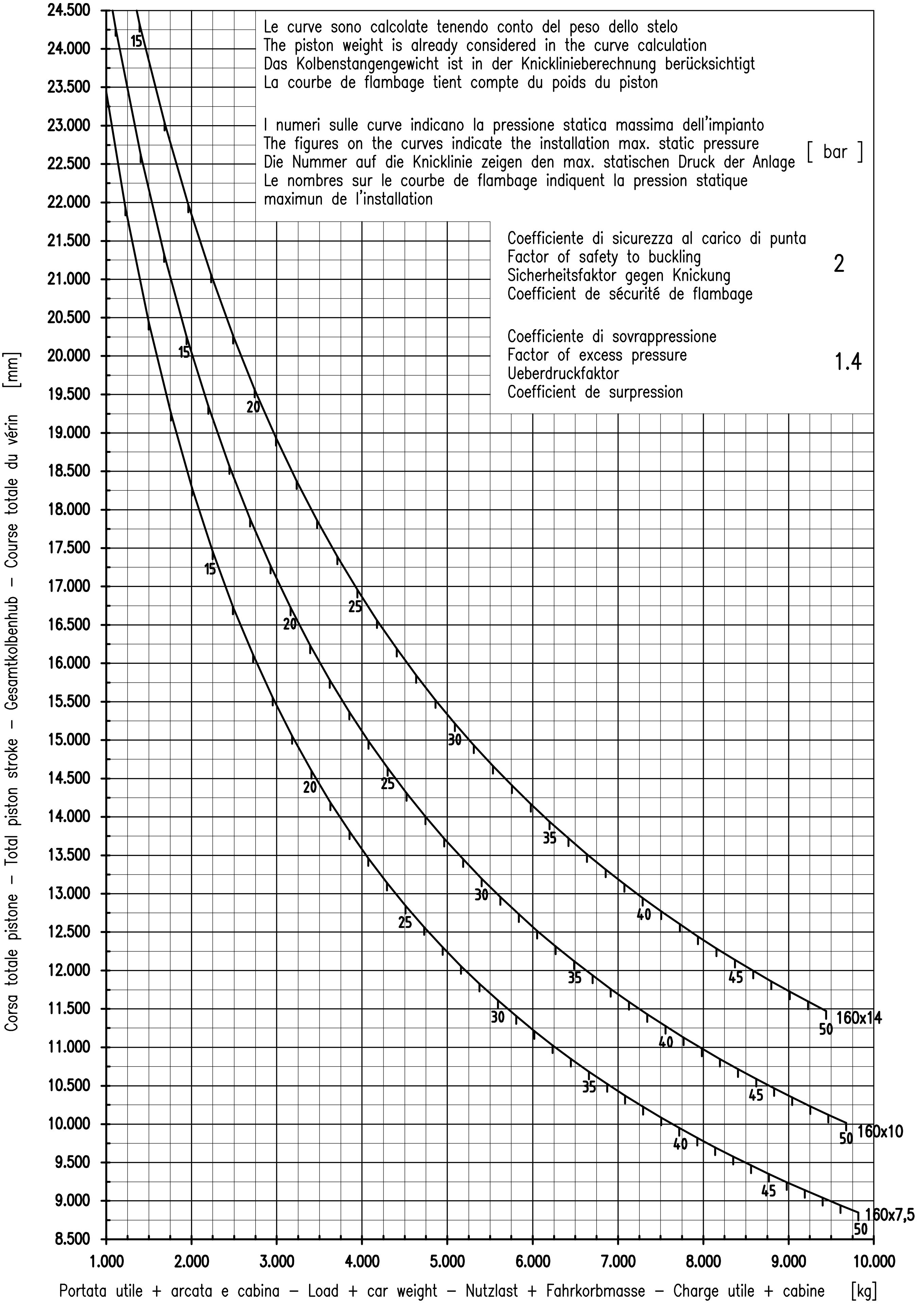
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK Ø150	Disegnato: Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il: 2 PX 0214 Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0291 /	Pag. 14 di 21

I GB D F

EN 81.2

Pistone – Piston – Kolben – Vérin ⌀160x7.5 / 10 / 14



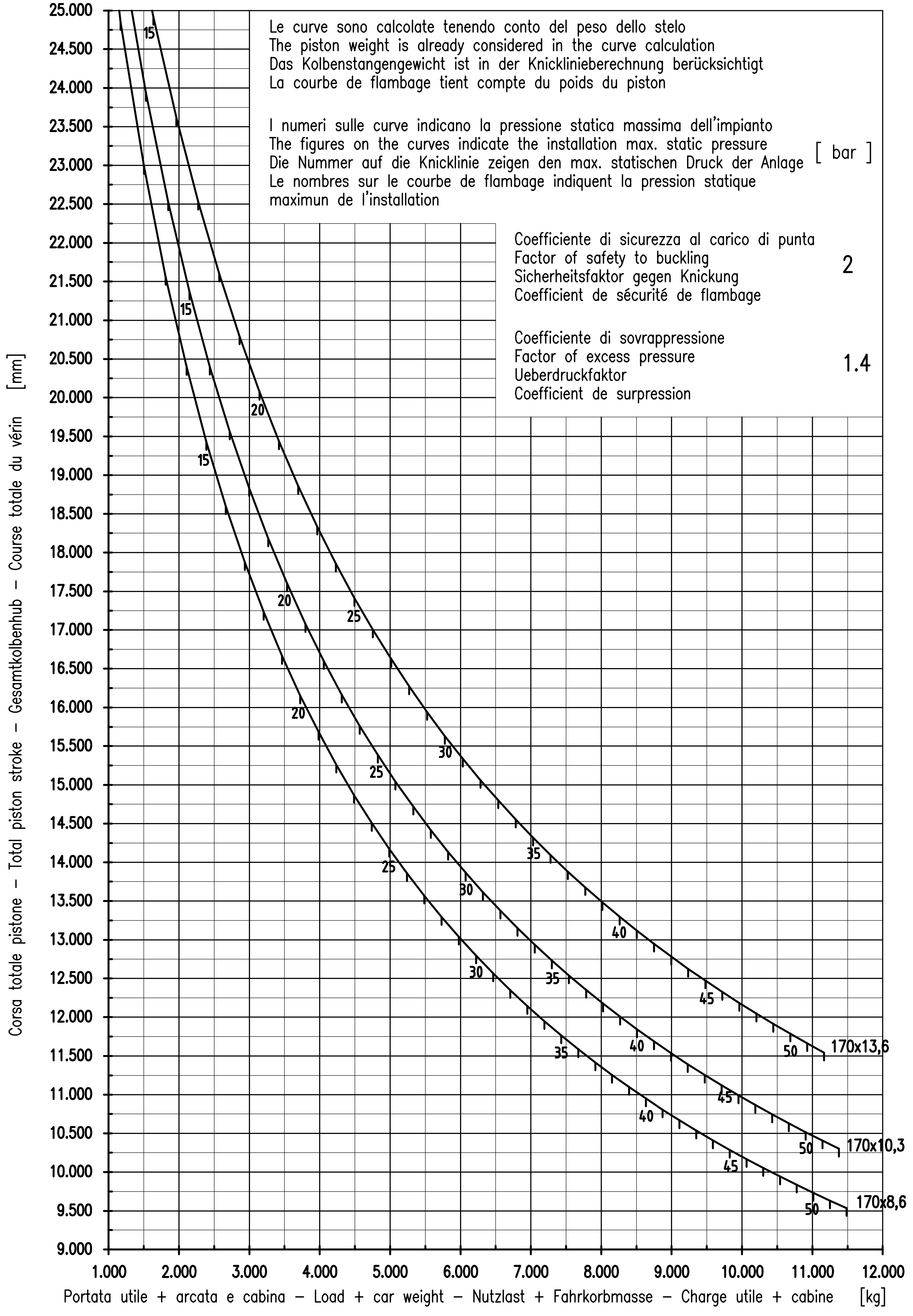
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I	GB	D	F

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ⌀160	Disegnato	Paolo G.	05-06-2001
			Controllato		
			Nullaosta		
Sost. il	2 PX 0214	DOCUMENTAZIONI TECNICHE 2 P X 0 2 9 1 /	Pag.	15	
Sost. dal			di	21	

EN 81.2

Pistone – Piston – Kolben – Vérin ø170x8.6 / 10.3 / 13.6



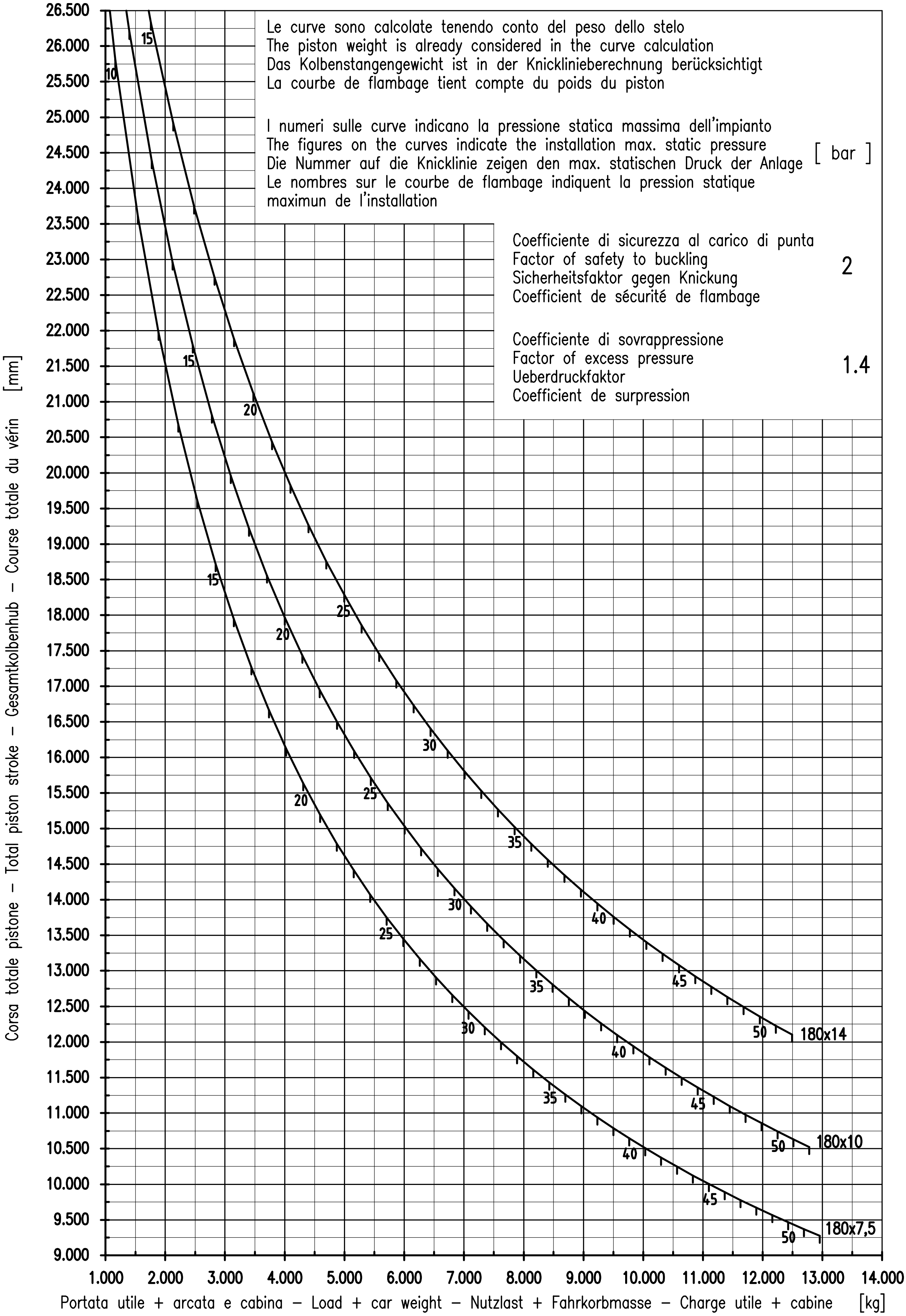
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ø170	Disegnato Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il 2 PX 0214 Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0291 /	Pag. 16 di 21

I GB D F

EN 81.2

Pistone – Piston – Kolben – Vérin Ø180x7.5 / 10 / 14



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK Ø180	Disegnato Paolo G.	05-06-2001
			Controllato	
			Nullaosta	
Sost. il 2 PX 0214	DOCUMENTAZIONI TECNICHE	2 P X 0291 /	Pag. 17	
Sost. dal			di 21	

I GB D F

EN 81.2

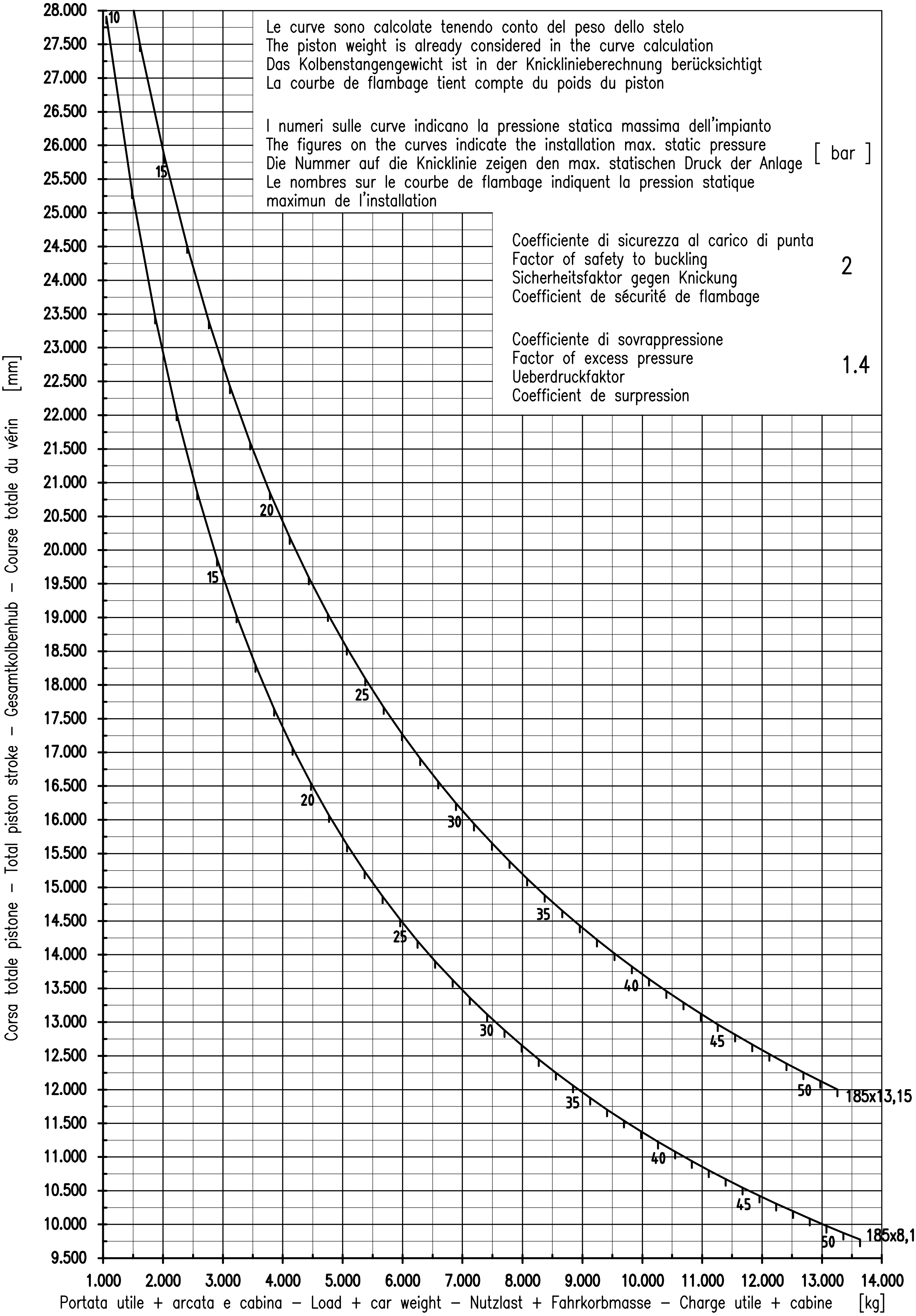
Pistone – Piston – Kolben – Vérin Ø185x8.15 / 13.15

Le curve sono calcolate tenendo conto del peso dello stelo
The piston weight is already considered in the curve calculation
Das Kolbenstangengewicht ist in der Knicklinieberechnung berücksichtigt
La courbe de flambage tient compte du poids du piston

I numeri sulle curve indicano la pressione statica massima dell'impianto
The figures on the curves indicate the installation max. static pressure
Die Nummer auf die Knicklinie zeigen den max. statischen Druck der Anlage [bar]
Le nombres sur le courbe de flambage indiquent la pression statique maximun de l'installation

Coefficiente di sicurezza al carico di punta
Factor of safety to buckling
Sicherheitsfaktor gegen Knickung
Coefficient de sécurité de flambage
2

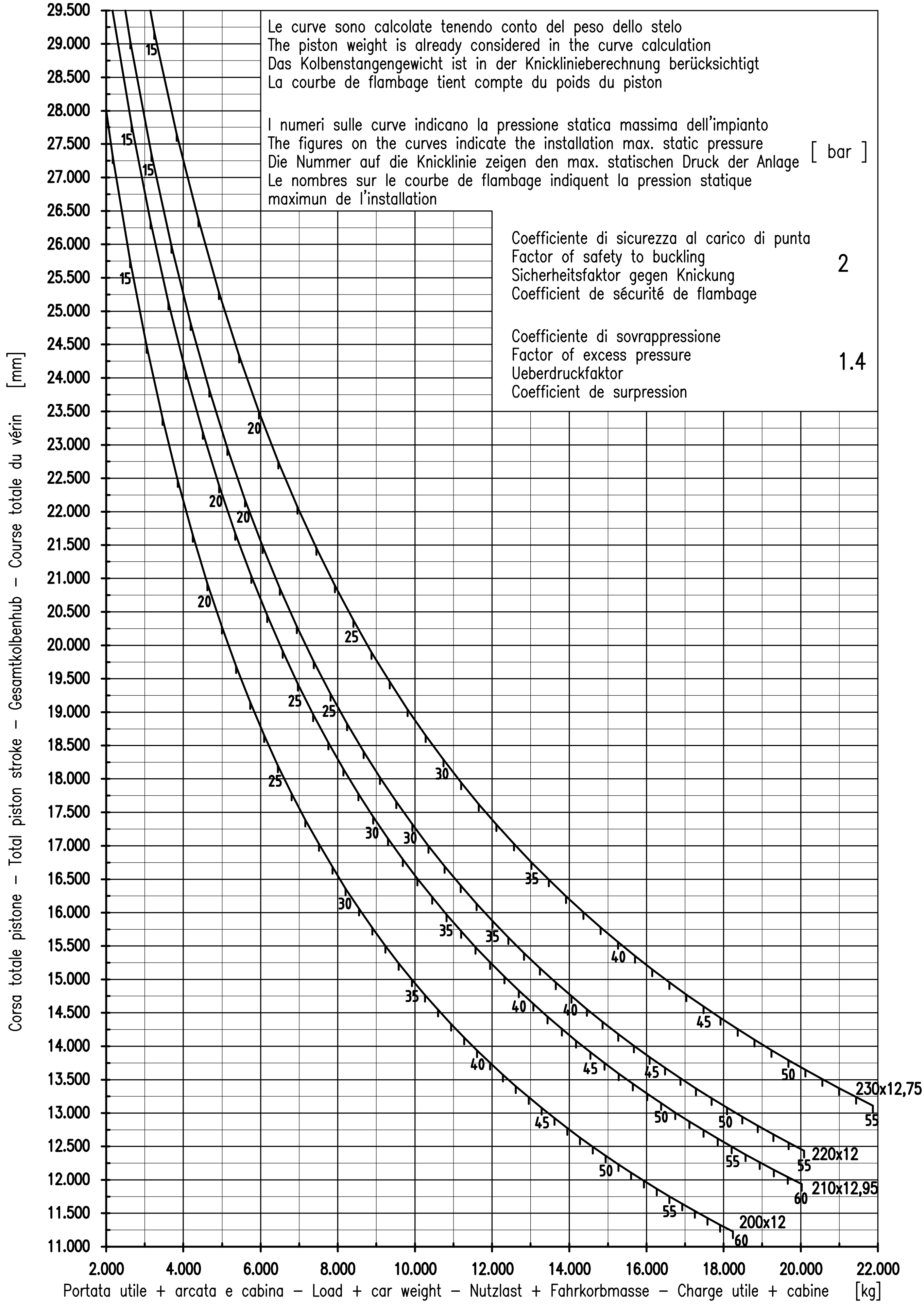
Coefficiente di sovrappressione
Factor of excess pressure
Ueberdruckfaktor
Coefficient de surpression
1.4



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F	C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK Ø185
Disegnato	Paolo G.	05-06-2001	
Controllato			
Nullaosta			
Sost. il	2 PX 0214	DOCUMENTAZIONI TECNICHE 2 P X 0 2 9 1 /	Pag. 18
Sost. dal			di 21

EN 81.2 Pistone – Piston – Kolben – Vérin ⌀200x12–210x12.95–220x12–230x12.75



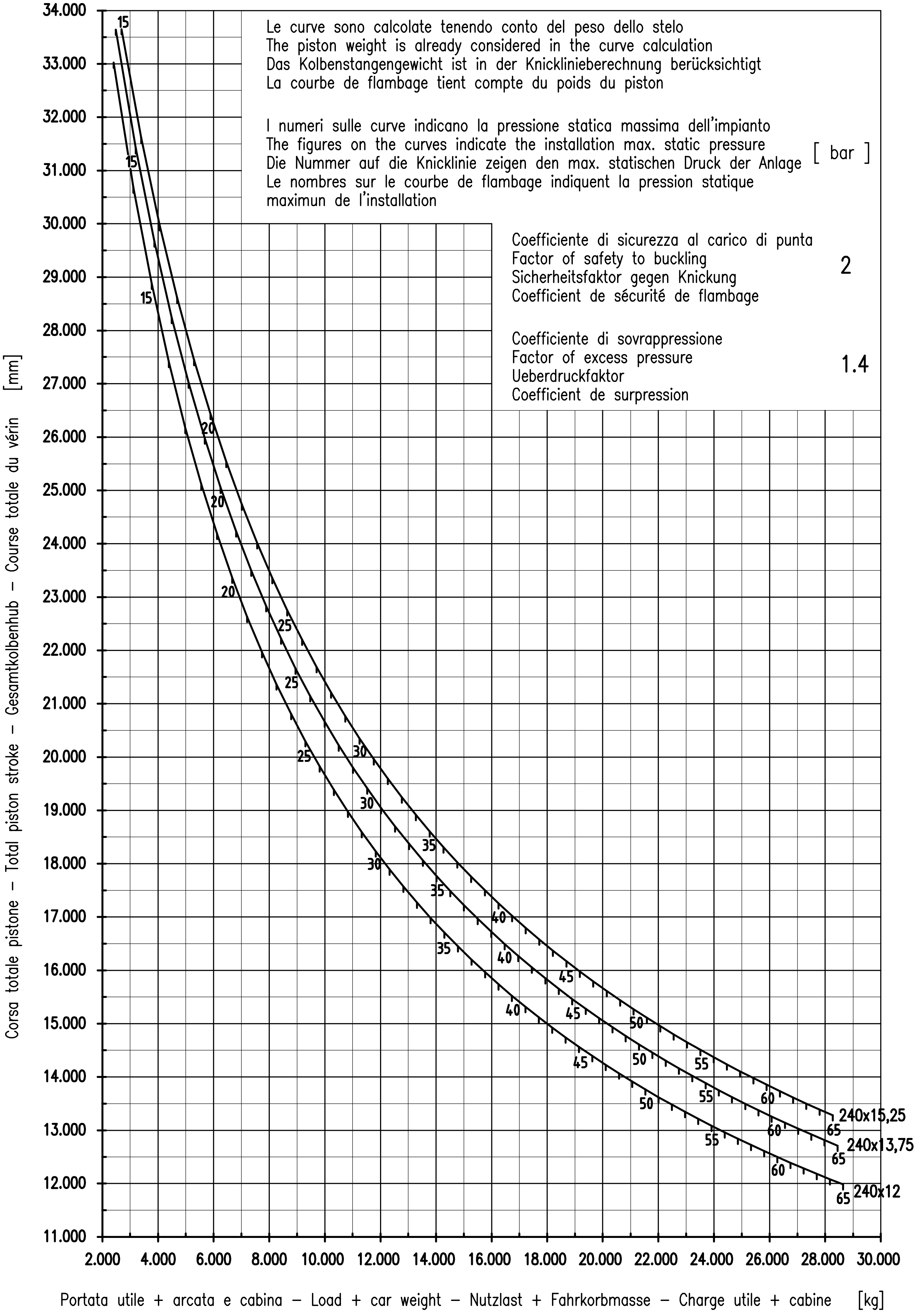
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ⌀200-210-220-230	Disegnato Paolo G. 05-06-2001 Controllato Nullaosta
Sost. il 2 PX 0214 Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 19 di 21

I GB D F

EN 81.2

Pistone – Piston – Kolben – Vérin ∅240x12 / 13.75 / 15.25

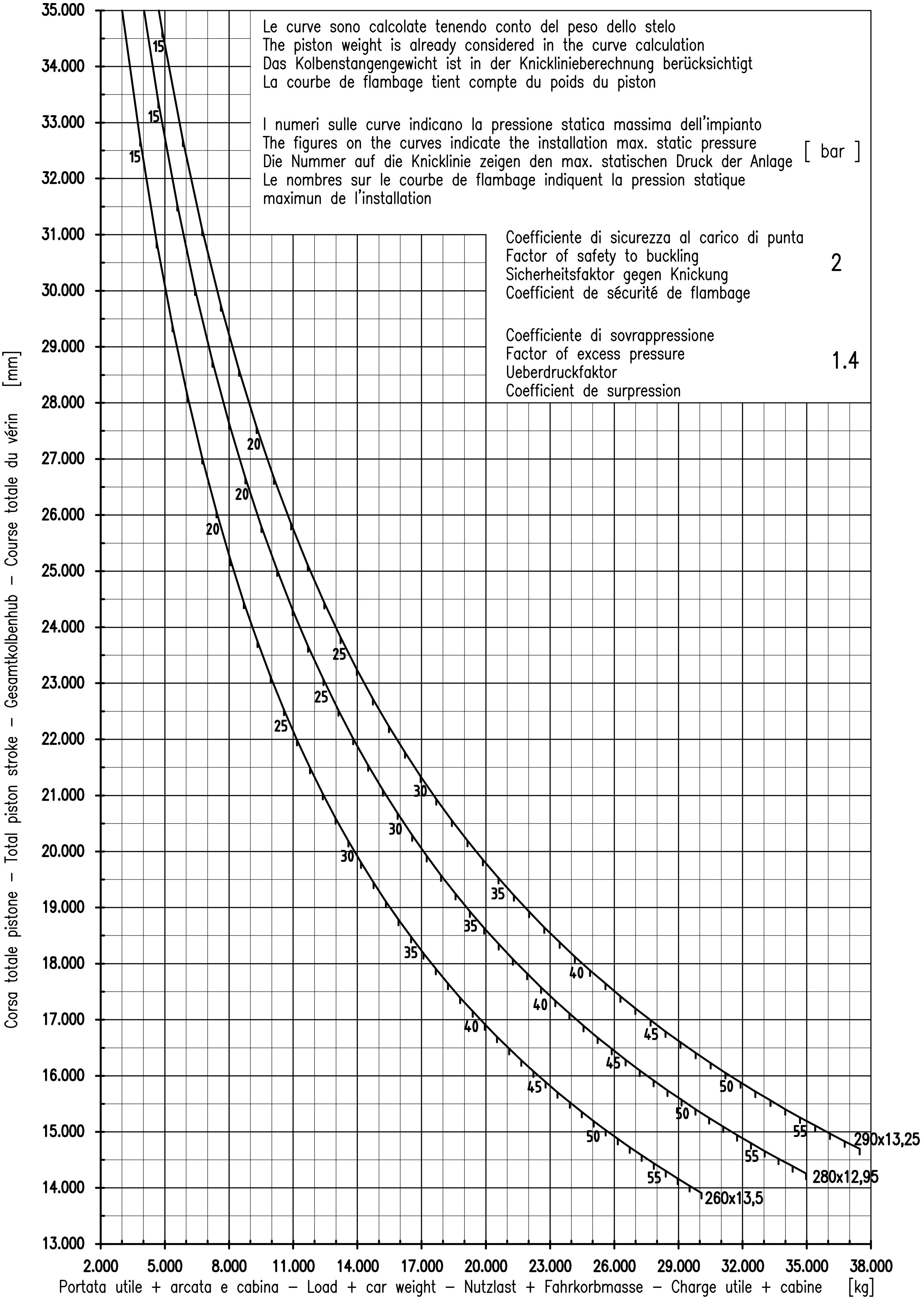


Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F	C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ∅240	Disegnato	Paolo G.	05-06-2001
				Controllato		
				Nullaosta		
Sost. il	2 PX 0214	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag.	20	
Sost. dal				di	21	

EN 81.2

Pistone – Piston – Kolben – Vérin ⌀260x13.5 – 280x12.95 – 290x13.25



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	CORSA MAX DEL PISTONE MAX TRAVEL OF PISTON MAX KOLBENHUB COURSE MAX DU VERIN	4 PK ⌀260-280-290	Disegnato Paolo G.	05-06-2001
			Controllato	
			Nullaosta	
Sost. il 2 PX 0214	DOCUMENTAZIONI TECNICHE	2 P X 0 2 9 1 /	Pag. 21	
Sost. dal			di 21	

I GB D F

How to use the selection tables

Speed, Pressure and piston rod Diameter are given.
With the help of theese diagrams we'll find out the right pump and motor unit. Let's see how it works with an example. We want to find the pump motor unit for a telescopic cylinder 63/2 for a speed of approximately 0,63 m/s. Let's the maximum static pressure of the lift be 45 bar.
Find on the left column on the page 1 of the sheet 2PX0264-B the line with 63/2 on it. On that line we'll find two values of speed: 0,57 and 0,68. since the values are nominal, the real speed will be lower, especially because the pressure is rather high. We'll choose 0,68.

The column of the value 0,68 is the one of the pump type GR45-180. The pump has a nominal flow rate of 180 l/min.
Right under the table of the piston/pumps there is the table pumps/dinamic pressures.
The static maximum pressure of 45 bar must be increased by a gross value of 5% to 15% in order to obtain the dynamic value. how much to increase comes from how long is the hydraulic circuits, how many curves there are, the size of the piping related to the flow rate. In normal conditions, the value of maximum static pressure can be increased by 10% and the unknown factors will fall inside the capability of the motor to face a 30% increase in power demand.
Corresponding to the column of the 180 l/min pump and to the line of the pressure 50 bar (45*1.1=49.5 bar) we can read a power needed of 18 kW. the first bigger motor size available is 20kW.

Our choice will be a motor with nominal power 20kW and a pump GR45- 180L.

For a more precise calculation please contact our office.

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info@coam-spa.com www.coam-spa.com

lift speed from piston and pump size (l/min) for telescopic cylinder type 3PL 2 stage.
Motor 50Hz 2 poles. n= 2750 rpm

Cylinder Direct Acting. Lift speed. v[m/s]

pump size [l/min]

type	A [cm²] / deq [mm]	GR20					GR25		GR32				GR40			GR45			GR55				GR60		GR70				GR80	
		8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
35/2	15 / 44	0.09	0.13	0.17	0.22	0.26	0.28	0.34	0.39	0.50	0.62	0.84	1.12																	
42/2	21 / 52	0.06	0.09	0.12	0.16	0.18	0.20	0.24	0.28	0.35	0.43	0.59	0.79	0.99	1.18															
50/2	29 / 61	0.05	0.07	0.09	0.11	0.13	0.14	0.17	0.20	0.26	0.31	0.43	0.57	0.71	0.85	1.02	1.19													
63/2	44 / 76		0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.17	0.21	0.28	0.38	0.47	0.57	**0.68**	0.80	0.95	1.03	1.14										
70/2	60 / 87				0.06	0.06	0.07	0.08	0.10	0.13	0.15	0.21	0.28	0.35	0.42	0.50	0.59	0.70	0.76	0.84	0.92	1.06	1.23							
85/2	85 / 104						0.05	0.06	0.07	0.09	0.11	0.15	0.20	0.25	0.29	0.35	0.41	0.49	0.53	0.59	0.65	0.75	0.86	0.98	1.06	1.18				
100/2	118 / 122								0.05	0.06	0.08	0.11	0.14	0.18	0.21	0.26	0.30	0.35	0.38	0.43	0.47	0.54	0.62	0.71	0.77	0.85	0.94	1.13		
120/2	170 / 147										0.05	0.07	0.10	0.12	0.15	0.18	0.21	0.24	0.26	0.29	0.32	0.37	0.43	0.49	0.53	0.59	0.65	0.78	0.98	1.18
140/2	234 / 173											0.05	0.07	0.09	0.11	0.13	0.15	0.18	0.19	0.21	0.23	0.27	0.31	0.36	0.38	0.43	0.47	0.57	0.71	0.85
170/2	340 / 208												0.05	0.06	0.07	0.09	0.10	0.12	0.13	0.15	0.16	0.19	0.22	0.25	0.26	0.29	0.32	0.39	0.49	0.59
200/2	488 / 249														0.05	0.06	0.07	0.09	0.09	0.10	0.11	0.13	0.15	0.17	0.18	0.21	0.23	0.27	0.34	0.41

min power needed [kW]

	l/min	8	12	15	20	23	25	30	35	45	55	75	100	125	150	**180**	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
max. din. Pressure	10	.2	.3	.4	.6	.7	.9	1.1	1.	1.2	1.4	1.8	2.5	3.	3.5	4.	5.	6.	6.	6.9	7.6	8.5	10.	11.	12.3	14.	15.	18.	22.	27.
	20	.4	.6	.8	.9	1.2	1.4	1.7	1.6	2.2	2.5	3.3	4.5	5.4	6.5	7.8	9.	10.8	11.6	12.8	14.5	16.	19.	22.	22.9	26.	28.6	34.	43.	52.
	30	.6	.8	1.1	1.6	1.6	1.8	2.3	2.5	3.2	3.7	4.7	6.5	7.9	9.5	11.2	13.4	16.1	17.	18.8	21.5	23.8	28.	30.	33.4	38.	42.	51.	64.	78.
	40	.7	1.1	1.4	2.	2.	2.2	3.	3.3	4.	4.7	6.	8.4	10.4	12.9	14.9	17.3	20.8	23.	24.	28.5	31.5	34.	42.	44.9	51.	55.	68.	85.	106.
	50	.9	1.3	1.7	2.5	2.5	2.8	3.8	4.	5.	5.8	7.2	10.	12.8	14.9	**18.**	21.	25.2	28.	30.2	35.	38.8	46.	52.	55.4	63.	69.	84.	105.	126.
	60	1.	1.5	2.	2.9	3.	3.3	4.4	4.6	6.	6.8	8.4	11.9	14.9	18.	21.	25.	30.	33.	35.9	41.5	46.	54.	62.	66.	75.	80.	100.	125.	149.
	70	1.1	1.6	2.3	3.3	3.5	3.8	5.	5.2	6.8	7.8	10.	13.8	16.9	20.	24.	28.5	34.2	38.	41.	48.	53.	62.	71.	75.6	86.	95.	116.	144.	172.
Nominal power available for motors	[kW]												1.5	2	3	4.4	6	7.7	9.5	12	14.7	16	**20**	24	29	33	40	47	60	77

Data subject to change without notice.

SELECTION TABLE FOR PISTON DIAMETER AND PUMP SIZE. Motor 50Hz 2 poles. n= 2750 rpm

Pist. diam. [mm] / PUMPS	size	GR20					GR25		GR32				GR40			GR45			GR55				GR60		GR70				GR80	
	l/min	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
1÷1	area [cm^2]	Direct Acting Piston. Lift speed [m/s]																												
35	9.62	0.14	0.21	0.26	0.35	0.40	0.43	0.52	0.61	0.78	0.95	1.30	1.73																	
42	13.9	0.10	0.14	0.18	0.24	0.28	0.30	0.36	0.42	0.54	0.66	0.90	1.20	1.50	1.80															
50	19.6	0.07	0.10	0.13	0.17	0.20	0.21	0.25	0.30	0.38	0.47	0.64	0.85	1.06	1.27	1.53	1.78													
56	24.6	0.05	0.08	0.10	0.14	0.16	0.17	0.20	0.24	0.30	0.37	0.51	0.68	0.85	1.02	1.22	1.42	1.69	1.83											
60	28.3	0.05	0.07	0.09	0.12	0.14	0.15	0.18	0.21	0.27	0.32	0.44	0.59	0.74	0.88	1.06	1.24	1.47	1.59	1.77	1.95									
63	31.2	0.04	0.06	0.08	0.11	0.12	0.13	0.16	0.19	0.24	0.29	0.40	0.53	0.67	0.80	0.96	1.12	1.34	1.44	1.60	1.76	2.03								
70	38.5	0.03	0.05	0.06	0.09	0.10	0.11	0.13	0.15	0.19	0.24	0.32	0.43	0.54	0.65	0.78	0.91	1.08	1.17	1.30	1.43	1.65	1.91							
80	50.3	0.03	0.04	0.05	0.07	0.08	0.08	0.10	0.12	0.15	0.18	0.25	0.33	0.41	0.50	0.60	0.70	0.83	0.90	0.99	1.09	1.26	1.46	1.66	1.79					
85	56.7	0.02	0.04	0.04	0.06	0.07	0.07	0.09	0.10	0.13	0.16	0.22	0.29	0.37	0.44	0.53	0.62	0.73	0.79	0.88	0.97	1.12	1.29	1.47	1.59	1.76	1.94			
90	63.6	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.12	0.14	0.20	0.26	0.33	0.39	0.47	0.55	0.65	0.71	0.79	0.86	1.00	1.15	1.31	1.41	1.57	1.73			
95	70.9	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.11	0.13	0.18	0.24	0.29	0.35	0.42	0.49	0.59	0.63	0.71	0.78	0.89	1.03	1.18	1.27	1.41	1.55	1.88		
100	78.5	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.10	0.12	0.16	0.21	0.27	0.32	0.38	0.45	0.53	0.57	0.64	0.70	0.81	0.93	1.06	1.15	1.27	1.40	1.70		
110	95.0	0.01	0.02	0.03	0.04	0.04	0.04	0.05	0.06	0.08	0.10	0.13	0.18	0.22	0.26	0.32	0.37	0.44	0.47	0.53	0.58	0.67	0.77	0.88	0.95	1.05	1.16	1.40	1.75	
120	113		0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.07	0.08	0.11	0.15	0.18	0.22	0.27	0.31	0.37	0.40	0.44	0.49	0.56	0.65	0.74	0.80	0.88	0.97	1.18	1.47	1.77
125	123		0.02	0.02	0.03	0.03	0.03	0.04	0.05	0.06	0.07	0.10	0.14	0.17	0.20	0.24	0.29	0.34	0.37	0.41	0.45	0.52	0.60	0.68	0.73	0.81	0.90	1.09	1.36	1.63
130	133		0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.06	0.07	0.09	0.13	0.16	0.19	0.23	0.26	0.31	0.34	0.38	0.41	0.48	0.55	0.63	0.68	0.75	0.83	1.00	1.26	1.51
140	154		0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.05	0.06	0.08	0.11	0.14	0.16	0.19	0.23	0.27	0.29	0.32	0.36	0.41	0.48	0.54	0.58	0.65	0.71	0.87	1.08	1.30
150	177			0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.05	0.07	0.09	0.12	0.14	0.17	0.20	0.24	0.25	0.28	0.31	0.36	0.41	0.47	0.51	0.57	0.62	0.75	0.94	1.13
160	201				0.02	0.02	0.02	0.02	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.15	0.17	0.21	0.22	0.25	0.27	0.31	0.36	0.41	0.45	0.50	0.55	0.66	0.83	0.99
170	227				0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.06	0.07	0.09	0.11	0.13	0.15	0.18	0.20	0.22	0.24	0.28	0.32	0.37	0.40	0.44	0.48	0.59	0.73	0.88
180	254					0.02	0.02	0.02	0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.25	0.29	0.33	0.35	0.39	0.43	0.52	0.65	0.79
185	269					0.01	0.02	0.02	0.02	0.03	0.03	0.05	0.06	0.08	0.09	0.11	0.13	0.16	0.17	0.19	0.20	0.24	0.27	0.31	0.33	0.37	0.41	0.50	0.62	0.74
200	314						0.01	0.02	0.02	0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.11	0.13	0.14	0.16	0.18	0.20	0.23	0.27	0.29	0.32	0.35	0.42	0.53	0.64
210	346							0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.09	0.10	0.12	0.13	0.14	0.16	0.18	0.21	0.24	0.26	0.29	0.32	0.38	0.48	0.58
220	380								0.02	0.02	0.02	0.03	0.04	0.05	0.07	0.08	0.09	0.11	0.12	0.13	0.14	0.17	0.19	0.22	0.24	0.26	0.29	0.35	0.44	0.53
230	415								0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.10	0.11	0.12	0.13	0.15	0.18	0.20	0.22	0.24	0.26	0.32	0.40	0.48
240	452									0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.29	0.37	0.44
260	531									0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.08	0.09	0.10	0.12	0.14	0.16	0.17	0.19	0.21	0.25	0.31	0.38
280	616										0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.12	0.14	0.15	0.16	0.18	0.22	0.27	0.32
290	661											0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.08	0.10	0.11	0.13	0.14	0.15	0.17	0.20	0.25	0.30
320	804											0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.14	0.17	0.21	0.25

power needed for max. din. press. Oil viscosity: 68 cst

max. din. Pressure	l/min ->	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
	10	.2	.3	.4	.6	.7	.9	1.1	1.	1.2	1.4	1.8	2.5	3.	3.5	4.	5.	6.	6.	6.9	7.6	8.5	10.	11.	12.3	14.	15.	18.	22.	27.
	20	.4	.6	.8	.9	1.2	1.4	1.7	1.6	2.2	2.5	3.3	4.5	5.4	6.5	7.8	9.	10.8	11.6	12.8	14.5	16.	19.	22.	22.9	26.	28.6	34.	43.	52.
	30	.6	.8	1.1	1.6	1.6	1.8	2.3	2.5	3.2	3.7	4.7	6.5	7.9	9.5	11.2	13.4	16.1	17.	18.8	21.5	23.8	28.	30.	33.4	38.	42.	51.	64.	78.
	40	.7	1.1	1.4	2.	2.	2.2	3.	3.3	4.	4.7	6.	8.4	10.4	12.9	14.9	17.3	20.8	23.	24.	28.5	31.5	34.	42.	44.9	51.	55.	68.	85.	
	50	.9	1.3	1.7	2.5	2.5	2.8	3.8	4.	5.	5.8	7.2	10.	12.8	14.9	18.	21.	25.2	28.	30.2	35.	38.8	46.	52.	55.4	63.	69.	84.		
	60	1.	1.5	2.	2.9	3.	3.3	4.4	4.6	6.	6.8	8.4	11.9	14.9	18.	21.	25.	30.	33.	35.9	41.5	46.	54.	62.	66.	75.	80.			
	70	1.1	1.6	2.3	3.3	3.5	3.8	5.	5.2	6.8	7.8	10.	13.8	16.9	20.	24.	28.5	34.2	38.	41.	48.	53.	62.	71.	75.6	86.				
	80	1.2	1.8	2.5	3.8	4.	4.4	6.	5.9	7.6	8.6	10.5	15.2	18.5	23.	27.	33.	39.6	43.	47.	53.	60.	70.	80.	85.3					

Nominal power available for motors	[kW]																													
													1.5	2	3	4.4	6	7.7	9.5	12	14.7	16	20	24	29	33	40	47	60	77

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COAM

SELECTION TABLE FOR PISTON DIAMETER AND PUMP SIZE. Motor 50Hz 2 poles. n= 2750 rpm

Rucksack 2÷1 . Lift speed [m/s]

Pist. diam. [mm]	PUMPS	GR20					GR25		GR32				GR40			GR45			GR55				GR60		GR70				GR80	
	size l/min	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
2÷1	area [cm²]																													
35	9.62	0.28	0.42	0.52	0.69	0.80	0.87	1.04	1.21	1.56	1.91																			
42	13.9	0.19	0.29	0.36	0.48	0.55	0.60	0.72	0.84	1.08	1.32	1.80																		
50	19.6	0.14	0.20	0.25	0.34	0.39	0.42	0.51	0.59	0.76	0.93	1.27	1.70																	
56	24.6	0.11	0.16	0.20	0.27	0.31	0.34	0.41	0.47	0.61	0.74	1.02	1.35	1.69	2.03															
60	28.3	0.09	0.14	0.18	0.24	0.27	0.29	0.35	0.41	0.53	0.65	0.88	1.18	1.47	1.77	2.12														
63	31.2	0.09	0.13	0.16	0.21	0.25	0.27	0.32	0.37	0.48	0.59	0.80	1.07	1.34	1.60	1.92														
70	38.5	0.07	0.10	0.13	0.17	0.20	0.22	0.26	0.30	0.39	0.48	0.65	0.87	1.08	1.30	1.56	1.82													
80	50.3	0.05	0.08	0.10	0.13	0.15	0.17	0.20	0.23	0.30	0.36	0.50	0.66	0.83	0.99	1.19	1.39	1.66	1.79	1.99										
85	56.7	0.05	0.07	0.09	0.12	0.14	0.15	0.18	0.21	0.26	0.32	0.44	0.59	0.73	0.88	1.06	1.23	1.47	1.59	1.76	1.94									
90	63.6	0.04	0.06	0.08	0.10	0.12	0.13	0.16	0.18	0.24	0.29	0.39	0.52	0.65	0.79	0.94	1.10	1.31	1.41	1.57	1.73	1.99								
95	70.9	0.04	0.06	0.07	0.09	0.11	0.12	0.14	0.16	0.21	0.26	0.35	0.47	0.59	0.71	0.85	0.99	1.18	1.27	1.41	1.55	1.79	2.07							
100	78.5	0.03	0.05	0.06	0.08	0.10	0.11	0.13	0.15	0.19	0.23	0.32	0.42	0.53	0.64	0.76	0.89	1.06	1.15	1.27	1.40	1.61	1.87							
110	95.0	0.03	0.04	0.05	0.07	0.08	0.09	0.11	0.12	0.16	0.19	0.26	0.35	0.44	0.53	0.63	0.74	0.88	0.95	1.05	1.16	1.33	1.54	1.75	1.89					
120	113	0.02	0.04	0.04	0.06	0.07	0.07	0.09	0.10	0.13	0.16	0.22	0.29	0.37	0.44	0.53	0.62	0.74	0.80	0.88	0.97	1.12	1.30	1.47	1.59	1.77	1.95			
125	123	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.10	0.12	0.15	0.20	0.27	0.34	0.41	0.49	0.57	0.68	0.73	0.81	0.90	1.03	1.20	1.36	1.47	1.63	1.79			
130	133	0.02	0.03	0.04	0.05	0.06	0.06	0.08	0.09	0.11	0.14	0.19	0.25	0.31	0.38	0.45	0.53	0.63	0.68	0.75	0.83	0.95	1.10	1.26	1.36	1.51	1.66	2.01		
140	154	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.08	0.10	0.12	0.16	0.22	0.27	0.32	0.39	0.45	0.54	0.58	0.65	0.71	0.82	0.95	1.08	1.17	1.30	1.43	1.73		
150	177	0.02	0.02	0.03	0.04	0.04	0.05	0.06	0.07	0.08	0.10	0.14	0.19	0.24	0.28	0.34	0.40	0.47	0.51	0.57	0.62	0.72	0.83	0.94	1.02	1.13	1.24	1.51	1.89	
160	201		0.02	0.02	0.03	0.04	0.04	0.05	0.06	0.07	0.09	0.12	0.17	0.21	0.25	0.30	0.35	0.41	0.45	0.50	0.55	0.63	0.73	0.83	0.90	0.99	1.09	1.33	1.66	1.99
170	227		0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.07	0.08	0.11	0.15	0.18	0.22	0.26	0.31	0.37	0.40	0.44	0.48	0.56	0.65	0.73	0.79	0.88	0.97	1.17	1.47	1.76
180	254		0.02	0.02	0.03	0.03	0.03	0.04	0.05	0.06	0.07	0.10	0.13	0.16	0.20	0.24	0.28	0.33	0.35	0.39	0.43	0.50	0.58	0.65	0.71	0.79	0.86	1.05	1.31	1.57
185	269			0.02	0.02	0.03	0.03	0.04	0.04	0.06	0.07	0.09	0.12	0.16	0.19	0.22	0.26	0.31	0.33	0.37	0.41	0.47	0.55	0.62	0.67	0.74	0.82	0.99	1.24	1.49
200	314			0.02	0.02	0.02	0.03	0.03	0.04	0.05	0.06	0.08	0.11	0.13	0.16	0.19	0.22	0.27	0.29	0.32	0.35	0.40	0.47	0.53	0.57	0.64	0.70	0.85	1.06	1.27
210	346				0.02	0.02	0.02	0.03	0.03	0.04	0.05	0.07	0.10	0.12	0.14	0.17	0.20	0.24	0.26	0.29	0.32	0.37	0.42	0.48	0.52	0.58	0.64	0.77	0.96	1.15
220	380				0.02	0.02	0.02	0.03	0.03	0.04	0.05	0.07	0.09	0.11	0.13	0.16	0.18	0.22	0.24	0.26	0.29	0.33	0.39	0.44	0.47	0.53	0.58	0.70	0.88	1.05
230	415				0.02	0.02	0.02	0.02	0.03	0.04	0.04	0.06	0.08	0.10	0.12	0.14	0.17	0.20	0.22	0.24	0.26	0.30	0.35	0.40	0.43	0.48	0.53	0.64	0.80	0.96
240	452					0.02	0.02	0.02	0.03	0.03	0.04	0.06	0.07	0.09	0.11	0.13	0.15	0.18	0.20	0.22	0.24	0.28	0.32	0.37	0.40	0.44	0.49	0.59	0.74	0.88
260	531						0.02	0.02	0.02	0.03	0.03	0.05	0.06	0.08	0.09	0.11	0.13	0.16	0.17	0.19	0.21	0.24	0.28	0.31	0.34	0.38	0.41	0.50	0.63	0.75
280	616							0.02	0.02	0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.11	0.14	0.15	0.16	0.18	0.21	0.24	0.27	0.29	0.32	0.36	0.43	0.54	0.65
290	661							0.02	0.02	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.11	0.13	0.14	0.15	0.17	0.19	0.22	0.25	0.27	0.30	0.33	0.40	0.50	0.61
320	804									0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.09	0.10	0.11	0.12	0.14	0.16	0.18	0.21	0.22	0.25	0.27	0.33	0.41	0.50

power needed for max. din. press. Oil viscosity: 68 cst

max. din. Pressure	l/min ->	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
	10	.2	.3	.4	.6	.7	.9	1.1	1.	1.2	1.4	1.8	2.5	3.	3.5	4.	5.	6.	6.	6.9	7.6	8.5	10.	11.	12.3	14.	15.	18.	22.	27.
	20	.4	.6	.8	.9	1.2	1.4	1.7	1.6	2.2	2.5	3.3	4.5	5.4	6.5	7.8	9.	10.8	11.6	12.8	14.5	16.	19.	22.	22.9	26.	28.6	34.	43.	52.
	30	.6	.8	1.1	1.6	1.6	1.8	2.3	2.5	3.2	3.7	4.7	6.5	7.9	9.5	11.2	13.4	16.1	17.	18.8	21.5	23.8	28.	30.	33.4	38.	42.	51.	64.	78.
	40	.7	1.1	1.4	2.	2.	2.2	3.	3.3	4.	4.7	6.	8.4	10.4	12.9	14.9	17.3	20.8	23.	24.	28.5	31.5	34.	42.	44.9	51.	55.	68.	85.	
	50	.9	1.3	1.7	2.5	2.5	2.8	3.8	4.	5.	5.8	7.2	10.	12.8	14.9	18.	21.	25.2	28.	30.2	35.	38.8	46.	52.	55.4	63.	69.	84.		
	60	1.	1.5	2.	2.9	3.	3.3	4.4	4.6	6.	6.8	8.4	11.9	14.9	18.	21.	25.	30.	33.	35.9	41.5	46.	54.	62.	66.	75.	80.			
	70	1.1	1.6	2.3	3.3	3.5	3.8	5.	5.2	6.8	7.8	10.	13.8	16.9	20.	24.	28.5	34.2	38.	41.	48.	53.	62.	71.	75.6	86.				
	80	1.2	1.8	2.5	3.8	4.	4.4	6.	5.9	7.6	8.6	10.5	15.2	18.5	23.	27.	33.	39.6	43.	47.	53.	60.	70.	80.	85.3					

Nominal power available for motors [kW] 1.5 2 3 4.4 6 7.7 9.5 12 14.7 16 20 24 29 33 40 47 60 77

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PISTONI TELESCOPICI SINCRONIZZATI IDRAULICAMENTE SERIE 3PL

HYDRAULICALLY SYNCHRONIZED TELESCOPIC CYLINDERS TYPE 3PL

TELESKOP GLEICHLAUFZYLINDER TYP 3PL

VÉRINS TÉLESCOPIQUES TYPE 3PL

Synchronized Telescopic Cylinder
Type 3 PL

Contents

1.0 General Description

The synchronized telescopic cylinder, type 3 PL is single acting and has uniform lifting and lowering speeds owing to a special design principle, i.e. the individual stages extend and retract at an equal rate.
It is manufactured as a two stage and three stage telescopic cylinder and available in 19 sizes.
It is mainly applied for hydraulically operated lift system where there are installation problems because space is limited, so that the overall length of the retracted cylinder must be substantially shorter than the actual stroke.
The synchronized telescopic cylinder is - up to a certain travel distance - a favourably price option compared to the indirect cylinder system (2:1).
By the use of additional guide yokes for the second and third stages respectively, the buckling strength is increased which allows the selection of a cylinder with smaller piston diameters.

2.0 Performance

The non return valves are closed during normal operations.
On upward travel the oil discharged by the pump is fed, via the lift control valve and the pressure connection port of the cylinder, into the piston chamber of the largest stage.
This causes an axial shifting of this stage, thereby displacing the oil in the differential space between cylinder casing and piston rod, from where it flows through transversal boreholes into the piston chamber of the next stage.
Thus this piston extends too, and displaces against the oil of the differential space to the smallest space which is also shifted.
Since the differential area corresponds to the piston area of the next smaller stage, the movement of all the individual stages are uniform, and the extension and retraction speeds remain equal over the total stroke.
The pump is therefore only connected with the largest stage, while the remaining stages make up a closed system.
The non-return valves, inserted in the bottom of the individual stages, ensure at any time an equal stroke position of the two and three stages respectively.

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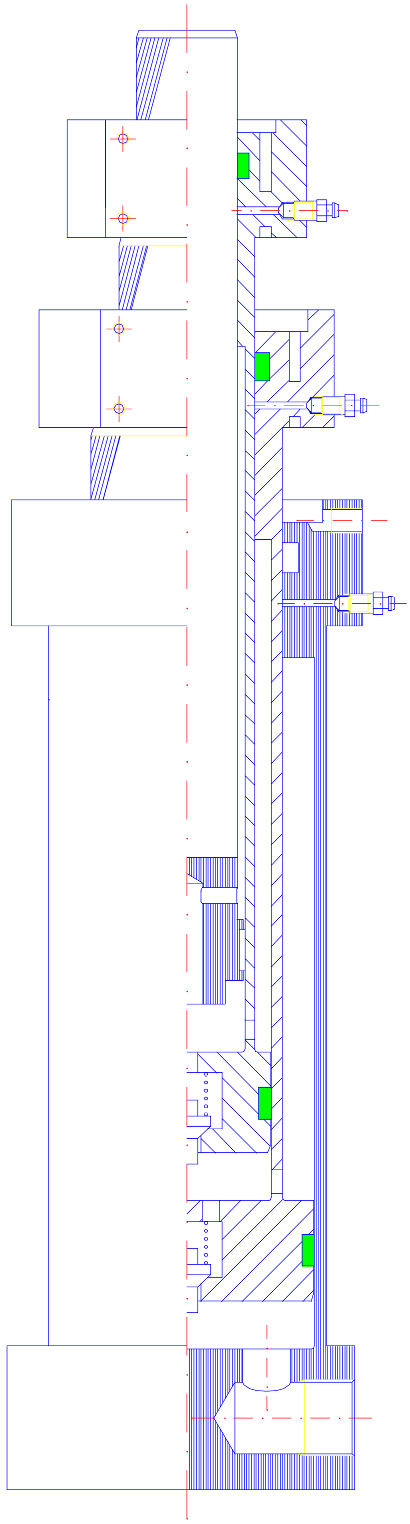
The non-return valve in a leading piston would, in downward direction, at the lowest stopping position be opened by the push rod striking against the cylinder bottom.
Oil would flow through the valve so long until a state of synchronization between the individual stages were restored.

3.0 Construction and design

To ensure optimal travel performance at slow speeds as well, all synchronized telescopic cylinders are equipped with low-friction guide bands made of teflon/bronze, and teflon seals.
The upper end stops of each stage are cushioned.
Each cylinder head is provided with a ventil screw at the topmost point, before the seal.
Any leak oil that might develop is collected at the lowest leakage oil ring and drains off via the leakage oil connection.

4.0 Installation instructions

Besides the minimum top and bottom overtravels, as specified in the relevant provisions, the corresponding travel distances acc. to sheet 2PX0262 pag. 4 must also be taken into consideration.
Side acting cylinder should be attached at the upper end to the wall by a retaining clamp.



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5.0 Order Code

3PL	- 100/3	-	VT-B	/	Z3	-	DO 11/2	-	15700

Telescopic Cylinder

type	3PL

Diameter/number of stages

		35/2
		42/2
		50/2
		63/2
		70/2
		85/2
		100/2
example : 100/3		120/2
100 =	smallest diam.	140/2
	of rod in mm	170/2
/3 =	3 - stage	200/2
		35/3
		42/3
		50/3
		63/3
		70/3
		85/3
		100/3
		120/3
		140/3

Side-Ram or Central-Direct-flange

side-ram with dowel	RS-Z
side-ram with hole	RS-B
central with VE flange acc. to EN81.2	VE-B
central with VT flange acc. to TRA 200	VT-B

With / without Yoke Plates for guide yokes

without yoke plates, no guide yoke	X0
with yoke plates for 2. stage	Z2
with yoke plates for 2. and 3. stage	Z3
without yoke plates, 2. stage guided	Y2
without yoke plates, 2. and 3. stage guided	Y3

Pressure port / size

pressure port bottom size	(RS)	DU
pressure port top size	(VE + VT)	DO

Cylinder stroke in mm

Cylinder stroke incl. under and overtravel (mm)	15700

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Instructions for planning and installation of synchronized telescopic 2-stage and 3-stage cylinders

To ensure satisfactory operations on the synchronized telescopic 3 PL cylinders, special attention should be given to the following remarks:

1.0 The following conditions have to be met when dividing the total reserve stroke of the cylinder into top and bottom overtravels (OFG and UFG).
Should these conditions not to be adhered to, operational problem will arise.

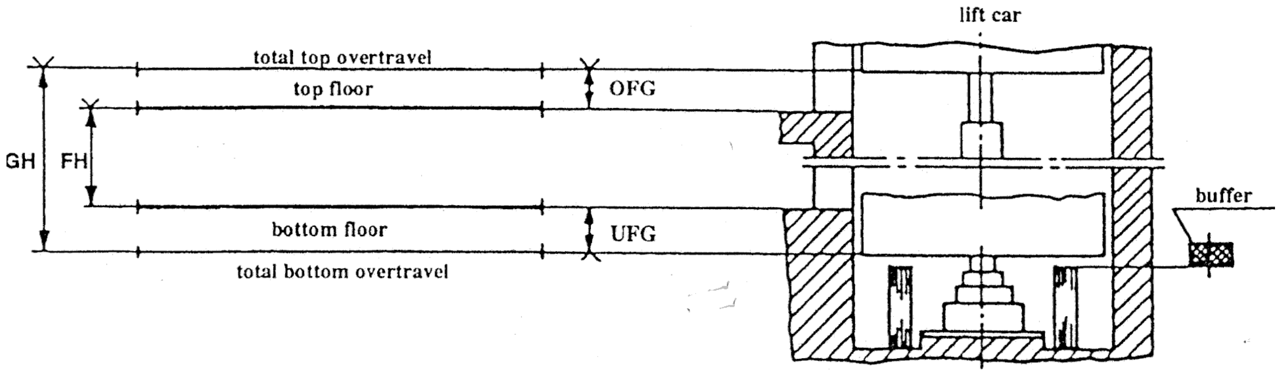
2.0 Details to determine the total stroke of telescopic cylinder

FH = Travel high of cabin
RH = Reserve stroke = total bottom overtravel + top overtravel (RH = UFG + OFG)
GH = Total stroke of the cylinder = travel + reserve stroke (GH = FH + RH)
UF = Bottom overtravel acc. to the given regulations
PH = Buffer stroke according to EN 81.2 = 65 mm
US = Bottom margin of 30 mm reserve stroke of cylinder (lift car rests on end stop support), buffer compressed.
UFG = Total bottom overtravel = buffer stroke + bottom margin of safety (UFG = PH + US)
OS = Top safety travel of 50 mm
OFG = Total top overtravel for two-stage telescopic cylinders:
= total bottom overtravel + top safety travel (OFG = UFG + OS)
OFG = Total top overtravel for two-stage telescopic cylinders:
= total bottom overtravel x 2 + top safety travel (OFG = UFG x 2 + OS)
BD = Allowance for structural inaccuracies

The values determined by the above formula for the total top overtravel (OFG) are as a rule, larger for three stage hydraulic rams than they would have to be according to EN or other specifications. But they may be made even larger, if the upper safety space is still in conformity with specifications. These values can only be reduced if at the same time the total bottom overtravel (OFG) is reduced to correspond the formula.

2.1 Example for determination of the total stroke of the cylinder

Travel	FH =	9,2 m
Telescopic cylinder	=	3-stage acc. to EN 81.2
Speed	=	0,63 m/s
Reserve stroke	RH =	640 mm (see sheet 2PX0262 pag. 5, chapter 3.0)
Total stroke of the cylinder	GH =	FH+RH = 9200 + 640 = 9840 mm



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3.0 Tables of the minimum overtravels required acc. to EN 81.2 (including the minimum additions, but without considering differences in travel caused by structural inaccuracies).

2-stage cylinder				3-stage cylinder			
travel speed m/s	UFG* mm	OFG mm	RH mm	travel speed m/s	UFG* mm	OFG mm	RH mm
v < 0,5	145	195	340	v < 0,5	145	345	490
0,5 ≤ v < 0,85	195	245	440	0,5 ≤ v < 0,85	195	445	640
v ≥ 0,85	245	295	540	v ≥ 0,85	245	545	790

* for calculation purposes the buffer stroke was assumed to be 65 mm acc. to EN 81.2. Deviations from this value should be considered separately.

4.0 Division of the differences caused by structural inaccuracies (BD)
If the travel distance from floor to floor increases or decreases, the total bottom overtravel (UFG) and the total top overtravel (OFG) should be calculated acc. to the following formula:

3PL - 2-stage	3PL - 3-stage
$UFG = \frac{GH - FH - OS}{2}$	$UFG = \frac{GH - FH - OS}{3}$
$OFG = UFG + OS$	$OFG = UFG \times 2 + OS$

If the travel distance (FH) is to be greater than originally planned, the structurally caused difference (BD) must under no circumstances be deducted solely from the "total top overtravel" (OFG) because otherwise the lift car, would no longer be able to reach the top floor, after a few travels.

5.0 To ensure synchronization of the piston rod, an automatic bottom floor homing device is required as described below.
In the Federal Republic of Germany an automatic homing device (max. 15 min. after a travel, with doors closed) to the lowermost stopping position is required, in conformity with TRA 265.5 and in conjunction with TRA 247.1, item 6. Lift manufacturers whose national specifications do not require such an automatic homing device, have to provide for this nonetheless in order to ensure synchronization of the cylinder rods.

6.0 As for the rest, the relevant and local regulations have to be observed, concerning the operation of hydraulic lift systems and the prevention of accidents.

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How to use the selection tables

Speed, Pressure and piston rod Diameter are given.
With the help of theese diagrams we'll find out the right pump and motor unit. Let's see how it works with an example. We want to find the pump motor unit for a telescopic cylinder 63/2 for a speed of approximately 0,63 m/s. Let's the maximum static pressure of the lift be 45 bar.
Find on the left column on the page 1 of the sheet 2PX0264-B the line with 63/2 on it. On that line we'll find two values of speed: 0,57 and 0,68. since the values are nominal, the real speed will be lower, especially because the pressure is rather high. We'll choose 0,68.

The column of the value 0,68 is the one of the pump type GR45-180. The pump has a nominal flow rate of 180 l/min.
Right under the table of the piston/pumps there is the table pumps/dinamic pressures.
The static maximum pressure of 45 bar must be increased by a gross value of 5% to 15% in order to obtain the dynamic value. how much to increase comes from how long is the hydraulic circuits, how many curves there are, the size of the piping related to the flow rate. In normal conditions, the value of maximum static pressure can be increased by 10% and the unknown factors will fall inside the capability of the motor to face a 30% increase in power demand.
Corresponding to the column of the 180 l/min pump and to the line of the pressure 50 bar (45*1.1=49.5 bar) we can read a power needed of 18 kW. the first bigger motor size available is 20kW.

Our choice will be a motor with nominal power 20kW and a pump GR45- 180L.

For a more precise calculation please contact our office.

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lift speed from piston and pump size (l/min) for telescopic cylinder type 3PL 2 stage.
Motor 50Hz 2 poles. n= 2750 rpm

Cylinder Direct Acting. Lift speed. v[m/s]

type	A [cm²] / deq [mm]	GR20 (pump size [l/min])					GR25		GR32				GR40			GR45			GR55				GR60		GR70				GR80	
		8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
35/2	15 / 44	0.09	0.13	0.17	0.22	0.26	0.28	0.34	0.39	0.50	0.62	0.84	1.12																	
42/2	21 / 52	0.06	0.09	0.12	0.16	0.18	0.20	0.24	0.28	0.35	0.43	0.59	0.79	0.99	1.18															
50/2	29 / 61	0.05	0.07	0.09	0.11	0.13	0.14	0.17	0.20	0.26	0.31	0.43	0.57	0.71	0.85	1.02	1.19													
63/2	44 / [illegible]		0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.17	0.21	0.26	0.38	0.47	0.57	**0.68**	0.80	0.95	1.03	1.14										
70/2	60 / 87				0.06	0.06	0.07	0.08	0.10	0.13	0.15	0.21	0.28	0.35	0.42	0.[illegible]0	0.59	0.70	0.76	0.84	0.92	1.06	1.23							
85/2	85 / 104						0.05	0.06	0.07	0.09	0.11	0.15	0.20	0.25	0.29	0.[illegible]5	0.41	0.49	0.53	0.59	0.65	0.75	0.86	0.98	1.06	1.18				
100/2	118 / 122								0.05	0.06	0.08	0.11	0.14	0.16	0.21	0.[illegible]6	0.30	0.35	0.38	0.43	0.47	0.54	0.62	0.71	0.77	0.85	0.94	1.13		
120/2	170 / 147										0.05	0.07	0.10	0.12	0.15	0.[illegible]8	0.21	0.24	0.26	0.29	0.32	0.37	0.43	0.49	0.53	0.59	0.65	0.78	0.98	1.18
140/2	234 / 173											0.05	0.07	0.09	0.11	0.[illegible]3	0.15	0.18	0.19	0.21	0.23	0.27	0.31	0.36	0.38	0.43	0.47	0.57	0.71	0.85
170/2	340 / 208												0.05	0.06	0.07	0.[illegible]9	0.10	0.12	0.13	0.15	0.16	0.19	0.22	0.25	0.26	0.29	0.32	0.39	0.49	0.59
200/2	488 / 249														0.05	0.[illegible]6	0.07	0.09	0.09	0.10	0.11	0.13	0.15	0.17	0.18	0.21	0.23	0.27	0.34	0.41

min power needed [kW]

max. din. Pressure	l/min	8	12	15	20	23	25	30	35	45	55	75	100	125	150	**180**	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
	10	.2	.3	.4	.6	.7	.9	1.1	1.	1.2	1.4	1.8	2.5	3.	3.5	4.	5.	6.	6.	6.9	7.6	8.5	10.	11.	12.3	14.	15.	18.	22.	27.
	20	.4	.6	.8	.9	1.2	1.4	1.7	1.6	2.2	2.5	3.3	4.5	5.4	6.5	7.8	9.	10.8	11.6	12.8	14.5	16.	19.	22.	22.9	26.	28.6	34.	43.	52.
	30	.6	.8	1.1	1.6	1.6	1.8	2.3	2.5	3.2	3.7	4.7	6.5	7.9	9.5	11.2	13.4	16.1	17.	18.8	21.5	23.8	28.	30.	33.4	38.	42.	51.	64.	78.
	40	.7	1.1	1.4	2.	2.	2.2	3.	3.3	4.	4.7	6.	8.4	10.4	12.9	14.9	17.3	20.8	23.	24.	28.5	31.5	34.	42.	44.9	51.	55.	68.	85.	106.
	50	.9	1.3	1.7	2.5	2.5	2.8	3.8	4.	5.	5.8	7.2	10.	12.8	14.9	**18.**	21.	25.2	28.	30.2	35.	38.8	46.	52.	55.4	63.	69.	84.	105.	126.
	60	1.	1.5	2.	2.9	3.	3.3	4.4	4.6	6.	6.8	8.4	11.9	14.9	18.	21.	25.	[illegible]	33.	35.9	41.5	46.	54.	62.	66.	75.	80.	100.	125.	149.
	70	1.1	1.6	2.3	3.3	3.5	3.8	5.	5.2	6.8	7.8	10.	13.8	16.9	20.	24.	28.5	34.2	38.	41.	48.	53.	62.	71.	75.6	86.	95.	116.	144.	172.
Nominal power available for motors	[kW]												1.5	2	3	4.4	6	7.7	9.5	12	14.7	16	**20**	24	29	33	40	47	60	77

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lift speed from piston and pump size (l/min) for telescopic cylinder type 3PL 2 stage.

Motor 50Hz 2 poles. n= 2750 rpm

Cylinder Direct Acting. Lift speed. v[m/s]

pump size [l/min]

type	A [cm²] / *deq [mm]*	pump size	GR20					GR25		GR32				GR40			GR45			GR55				GR60		GR70				GR80	
		[l/min]	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
35/2	15 / *44*		0.09	0.13	0.17	0.22	0.26	0.28	0.34	0.39	0.50	0.62	0.84	1.12																	
42/2	21 / *52*		0.06	0.09	0.12	0.16	0.18	0.20	0.24	0.28	0.35	0.43	0.59	0.79	0.99	1.18															
50/2	29 / *61*		0.05	0.07	0.09	0.11	0.13	0.14	0.17	0.20	0.26	0.31	0.43	0.57	0.71	0.85	1.02	1.19													
63/2	44 / *75*			0.05	0.06	0.08	0.09	0.09	0.11	0.13	0.17	0.21	0.28	0.38	0.47	0.57	0.68	0.80	0.95	1.03	1.14										
70/2	60 / *87*					0.06	0.06	0.07	0.08	0.10	0.13	0.15	0.21	0.28	0.35	0.42	0.50	0.59	0.70	0.76	0.84	0.92	1.06	1.23							
85/2	85 / *104*							0.05	0.06	0.07	0.09	0.11	0.15	0.20	0.25	0.29	0.35	0.41	0.49	0.53	0.59	0.65	0.75	0.86	0.98	1.06	1.18				
100/2	118 / *122*									0.05	0.06	0.08	0.11	0.14	0.18	0.21	0.26	0.30	0.35	0.38	0.43	0.47	0.54	0.62	0.71	0.77	0.85	0.94	1.13		
120/2	170 / *147*											0.05	0.07	0.10	0.12	0.15	0.18	0.21	0.24	0.26	0.29	0.32	0.37	0.43	0.49	0.53	0.59	0.65	0.78	0.98	1.18
140/2	234 / *173*												0.05	0.07	0.09	0.11	0.13	0.15	0.18	0.19	0.21	0.23	0.27	0.31	0.36	0.38	0.43	0.47	0.57	0.71	0.85
170/2	340 / *208*													0.05	0.06	0.07	0.09	0.10	0.12	0.13	0.15	0.16	0.19	0.22	0.25	0.26	0.29	0.32	0.39	0.49	0.59
200/2	488 / *249*															0.05	0.06	0.07	0.09	0.09	0.10	0.11	0.13	0.15	0.17	0.18	0.21	0.23	0.27	0.34	0.41

min power needed [kW]

max. din. Pressure [bar]	l/min	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
	10	.2	.3	.4	.6	.7	.9	1.1	1.	1.2	1.4	1.8	2.5	3.	3.5	4.	5.	6.	6.	6.9	7.6	8.5	10.	11.	12.3	14.	15.	18.	22.	27.
	20	.4	.6	.8	.9	1.2	1.4	1.7	1.6	2.2	2.5	3.3	4.5	5.4	6.5	7.8	9.	10.8	11.6	12.8	14.5	16.	19.	22.	22.9	26.	28.6	34.	43.	52.
	30	.6	.8	1.1	1.6	1.6	1.8	2.3	2.5	3.2	3.7	4.7	6.5	7.9	9.5	11.2	13.4	16.1	17.	18.8	21.5	23.8	28.	30.	33.4	38.	42.	51.	64.	78.
	40	.7	1.1	1.4	2.	2.	2.2	3.	3.3	4.	4.7	6.	8.4	10.4	12.9	14.9	17.3	20.8	23.	24.	28.5	31.5	34.	42.	44.9	51.	55.	68.	85.	
	50	.9	1.3	1.7	2.5	2.5	2.8	3.8	4.	5.	5.8	7.2	10.	12.8	14.9	18.	21.	25.2	28.	30.2	35.	38.8	46.	52.	55.4	63.	69.	84.		
	60	1.	1.5	2.	2.9	3.	3.3	4.4	4.6	6.	6.8	8.4	11.9	14.9	18.	21.	25.	30.	33.	35.9	41.5	46.	54.	62.	66.	75.	80.			
	70	1.1	1.6	2.3	3.3	3.5	3.8	5.	5.2	6.8	7.8	10.	13.8	16.9	20.	24.	28.5	34.2	38.	41.	48.	53.	62.	71.	75.6	86.				
Nominal power available for motors	[kW]												1.5	2	3	4.4	6	7.7	9.5	12	14.7	16	20	24	29	33	40	47	60	77

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lift speed from piston and pump size (l/min) for telescopic cylinder type 3PL 3 stage.

Motor 50Hz 2 poles. n= 2750 rpm

Cylinder Direct Acting. Lift speed. v[m/s]

pump size [l/min]

pist. Size	A [cm²] / d_{eq} [mm]	pump size	GR20					GR25		GR32				GR40			GR45			GR55				GR60		GR70				GR80	
		[l/min]	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
35/3	23 / *54*		0.06	0.09	0.11	0.14	0.17	0.18	0.22	0.25	0.32	0.40	0.54	0.72	0.90	1.08	1.30														
42/3	33 / *65*			0.06	0.08	0.10	0.12	0.13	0.15	0.18	0.23	0.28	0.38	0.50	0.63	0.76	0.91	1.06	1.26												
50/3	47 / *77*			0.04	0.05	0.07	0.08	0.09	0.11	0.12	0.16	0.20	0.27	0.36	0.45	0.54	0.64	0.75	0.89	0.96	1.07	1.18									
63/3	67 / *92*			0.03	0.04	0.05	0.06	0.06	0.07	0.09	0.11	0.14	0.19	0.25	0.31	0.37	0.45	0.52	0.62	0.67	0.75	0.82	0.95	1.10	1.25						
70/3	92 / *108*					0.04	0.04	0.05	0.05	0.06	0.08	0.10	0.14	0.18	0.23	0.27	0.33	0.38	0.45	0.49	0.54	0.60	0.69	0.80	0.91	0.98	1.09	1.20			
85/3	132 / *130*							0.03	0.04	0.04	0.06	0.07	0.09	0.13	0.16	0.19	0.23	0.26	0.32	0.34	0.38	0.42	0.48	0.55	0.63	0.68	0.76	0.83	1.01	1.26	
100/3	187 / *154*									0.03	0.04	0.05	0.07	0.09	0.11	0.13	0.16	0.19	0.22	0.24	0.27	0.29	0.34	0.39	0.45	0.48	0.54	0.59	0.71	0.89	1.07
120/3	264 / *184*											0.03	0.05	0.06	0.08	0.09	0.11	0.13	0.16	0.17	0.19	0.21	0.24	0.28	0.32	0.34	0.38	0.42	0.50	0.63	0.76
140/3	378 / *219*												0.03	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.13	0.15	0.17	0.19	0.22	0.24	0.26	0.29	0.35	0.44	0.53

min power needed [kW]

	l/min	8	12	15	20	23	25	30	35	45	55	75	100	125	150	180	210	250	270	300	330	380	440	500	540	600	660	800	1000	1200
max. din. Pressure	10	.2	.3	.4	.6	.7	.9	1.1	1.	1.2	1.4	1.8	2.5	3.	3.5	4.	5.	6.	6.	6.9	7.6	8.5	10.	11.	12.3	14.	15.	18.	22.	27.
	20	.4	.6	.8	.9	1.2	1.4	1.7	1.6	2.2	2.5	3.3	4.5	5.4	6.5	7.8	9.	10.8	11.6	12.8	14.5	16.	19.	22.	22.9	26.	28.6	34.	43.	52.
	30	.6	.8	1.1	1.6	1.6	1.8	2.3	2.5	3.2	3.7	4.7	6.5	7.9	9.5	11.2	13.4	16.1	17.	18.8	21.5	23.8	28.	30.	33.4	38.	42.	51.	64.	
	40	.7	1.1	1.4	2.	2.	2.2	3.	3.3	4.	4.7	6.	8.4	10.4	12.9	14.9	17.3	20.8	23.	24.	28.5	31.5	34.	42.	44.9	51.	55.	68.		
	50	.9	1.3	1.7	2.5	2.5	2.8	3.8	4.	5.	5.8	7.2	10.	12.8	14.9	18.	21.	25.2	28.	30.2	35.	38.8	46.	52.	55.4	63.	69.			
Nominal power available for motors	[kW]												1.5	2	3	4.4	6	7.7	9.5	12	15	16	20	24	29	33	40	47	60	77

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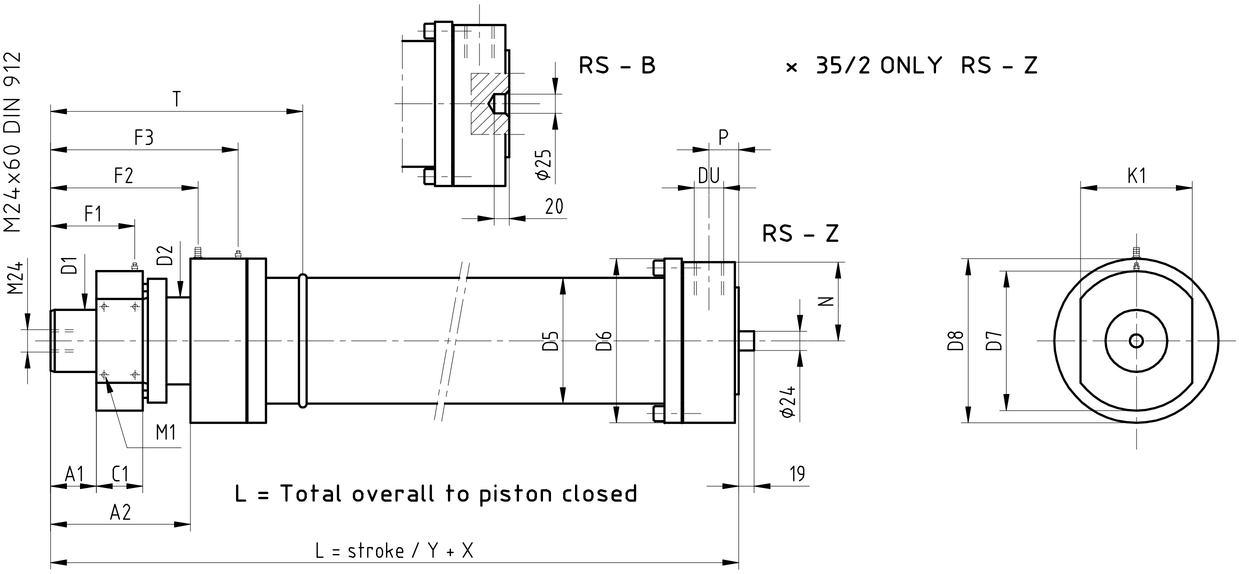
Synchronized telescopic 2 stage cylinder acc. to TRA 200 and EN 81.2 - Side Ram System



Typ	3 PL - RS Z / B										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
A1	26	26	26	26	26	26	40	40	40	40	40
A2	120	120	120	120	125	130	155	160	175	173	180
C1	70	70	70	70	70	70	75	85	95	95	95
D1	35	42	50	63	70	85	100	120	140	170	200
D2	50	60	70	85	100	120	140	170	200	240	290
D5	70	88. 9	95	121	139, 7	168, 3	193, 7	244, 5	273	323, 9	394
D6	110	135	147	180	200	225	260	315	350	400	470
D7	110	125	132	150	165	185	225	265	295	340	400
D8	110	130	145	165	200	220	260	315	350	400	470
DU	G 3/4"	G 1"	G 1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	83	102	112	122	117	117
F2	133	133	133	133	138	143	169	182	196	194	201
F3	177	177	177	177	187	192	227	242	262	265	272
K1	90	95	100	110	135	150	180	215	255	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12	M12	M12
N	50	58	65	80	95	106	123	151	170	196	230
P	37	47	47	47	50	50	50	50	50	50	50
T	280	280	280	280	280	280	330	350	350	350	400
X	415	441	441	458	472	480	592	587	686	685	800
Y	1, 898	1, 980	1, 930	1, 990	1, 898	1, 997	1, 998	1, 997	1, 997	1, 998	1, 995
p stat.	64	64	64	64	64	64	64	64	64	64	64
m H0 (kg)	21, 2	29, 9	36, 4	55, 0	77, 9	100, 3	151, 4	233, 6	320, 0	502, 5	772, 6
m HM (kg)	13, 5	15, 9	19, 1	30, 6	44, 2	61, 8	56, 6	100, 0	106, 6	140, 2	226, 5
p stat. : max static pressure (bar) acc. to EN 81 - 2 / TRA 200											
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT											

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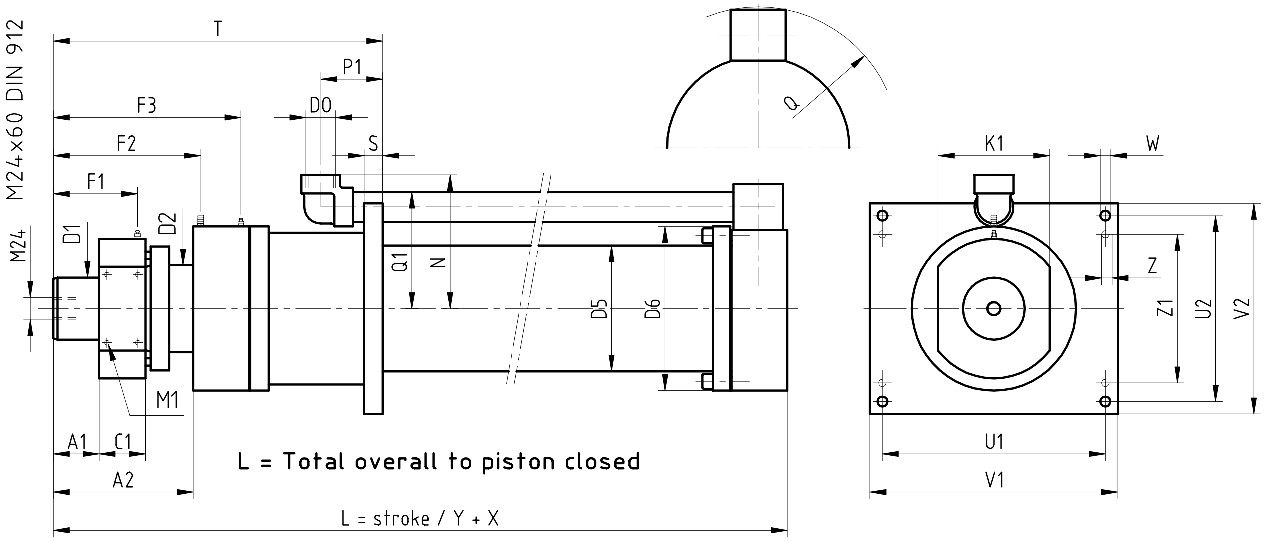
Synchronized telescopic 2 stage cylinder without yoke guide acc. to EN 81.2 - Central Direct System



Typ	3PL - VE-B/X0										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
A1	26	26	26	26	26	26	40	40	40	40	40
A2	120	120	120	120	125	130	155	160	175	173	180
C1	70	70	70	70	70	70	75	85	95	95	95
D1	35	42	50	63	70	85	100	120	140	170	200
D2	50	60	70	85	100	120	140	170	200	240	290
D5	70	88. 9	95	121	139, 7	168, 3	193, 7	244, 5	273	323, 9	394
D6	110	135	147	180	200	225	260	315	350	400	470
D0	G 3/4"	G1"	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	83	102	112	122	117	117
F2	133	133	133	133	138	143	169	182	196	194	201
F3	177	177	177	177	187	192	227	242	262	265	272
K1	90	95	100	110	135	150	180	215	255	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12	M12	M12
N	110	130	137	169	184	195	232	281	300	315	365
P1	85	86	86	100	100	101	150	150	150	150	160
Q	104	128	134	159	174	184	201	239	258	284	317
Q1 max	89	107	115	142	157	168	205	251	270	285	335
S	20	20	20	30	30	30	35	35	40	40	45
T	500	500	500	500	500	500	500	500	580	580	580
U1	200	200	200	230	260	300	400	460	500	530	630
U2	160	160	160	180	210	260	400	460	500	530	630
V1	240	240	240	270	300	340	470	560	600	630	730
V2	200	200	200	220	250	300	470	560	600	630	730
W	16	16	16	16	16	16	19	24	24	28	28
X	415	441	441	458	472	480	592	587	686	685	800
Y	1, 898	1, 980	1, 930	1, 990	1, 898	1, 997	1, 998	1, 997	1, 997	1, 998	1, 995
Z	M12	M12	M12	M12	M12	M12	M16	M16	M16	M16	M20
Z1	100	100	100	120	150	200	320	380	400	430	530
p stat.	64	64	64	64	64	64	64	64	64	64	64
m H0 (kg)	37, 4	50, 1	58, 2	83, 3	114, 2	150, 5	231, 9	342, 4	462, 6	671, 6	992, 3
m HM (kg)	14, 9	17, 7	20, 9	33, 8	47, 5	65, 0	59, 8	104, 6	111, 2	144, 8	231, 1
p stat. : max static pressure (bar) acc. to EN 81 - 2											
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT											

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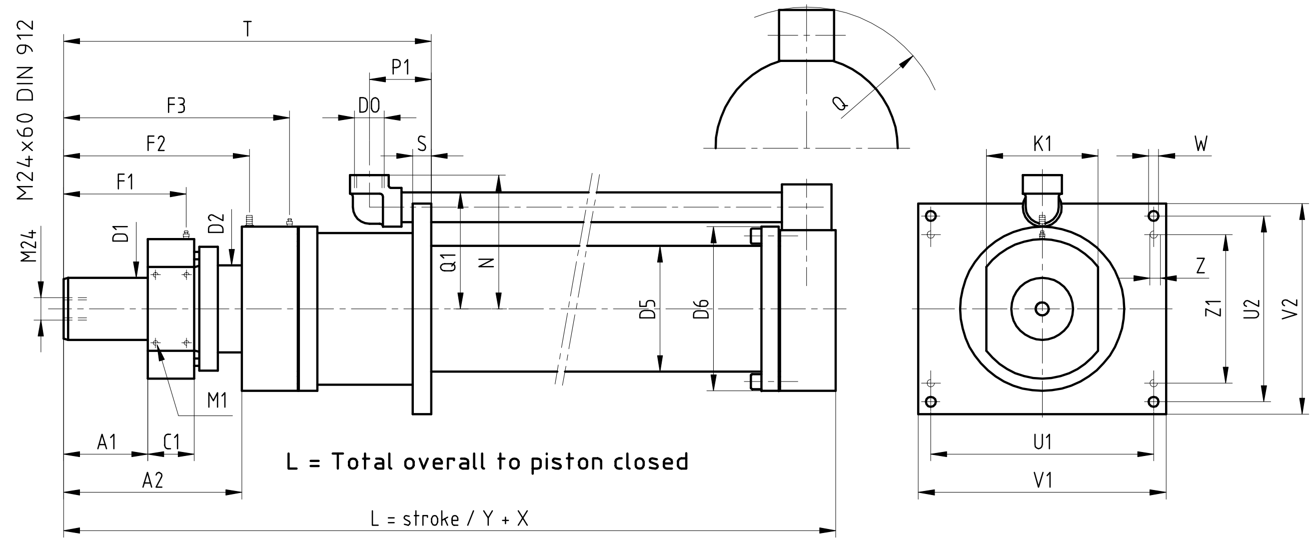
Synchronized telescopic 2 stage cylinder with yoke guide for 2 stage - acc. to EN 81.2 - Central Direct System



Typ	3PL - VE-B/Y2/Z2										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
A1	300	300	300	300	300	300	300	300	300	300	300
A2	394	394	394	394	399	404	415	420	435	433	440
C1	70	70	70	70	70	70	75	85	95	95	95
D1	35	42	50	63	70	85	100	120	140	170	200
D2	50	60	70	85	100	120	140	170	200	240	290
D5	70	88. 9	95	121	139, 7	168, 3	193, 7	244, 5	273	323, 9	394
D6	110	135	147	180	200	225	260	315	350	400	470
D0	G 3/4"	G1"	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G 2"	G 2"	G 2"	G 2"
F1	357	357	357	357	357	357	362	372	382	377	377
F2	407	407	407	407	412	417	429	442	456	454	461
F3	451	451	451	451	461	466	487	502	522	525	532
K1	90	95	100	110	135	150	180	215	255	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12	M12	M12
N	110	130	137	169	184	195	232	281	300	315	365
P1	85	86	86	100	100	101	150	150	150	150	160
Q	104	128	134	159	174	184	201	239	258	284	317
Q1 max	89	107	115	142	157	168	205	251	270	285	335
S	20	20	20	30	30	30	35	35	40	40	45
T	870	870	870	870	870	870	875	885	900	900	900
U1	200	200	200	230	260	300	400	460	500	530	630
U2	160	160	160	180	210	260	400	460	500	530	630
V1	240	240	240	270	300	340	470	560	600	630	730
V2	200	200	200	220	250	300	470	560	600	630	730
W	16	16	16	16	16	16	19	24	24	28	28
X	689	715	715	732	746	754	852	847	946	945	1060
Y	1, 898	1, 980	1, 930	1, 990	1, 898	1, 997	1, 998	1, 997	1, 997	1, 998	1, 995
Z	M12	M12	M12	M12	M12	M12	M16	M16	M16	M16	M20
Z1	100	100	100	120	150	200	320	380	400	430	530
p stat.	64	64	64	64	64	64	64	64	64	64	64
m H0 (kg)	43, 2	58, 0	68, 0	96, 1	130, 9	175, 5	253, 6	374, 9	488, 4	718, 8	1033, 3
m HM (kg)	14, 9	17, 7	20, 9	33, 8	47, 5	65, 0	59, 8	104, 6	111, 2	144, 8	231, 1
p stat. : max static pressure (bar) acc. to EN 81 - 2											
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT											

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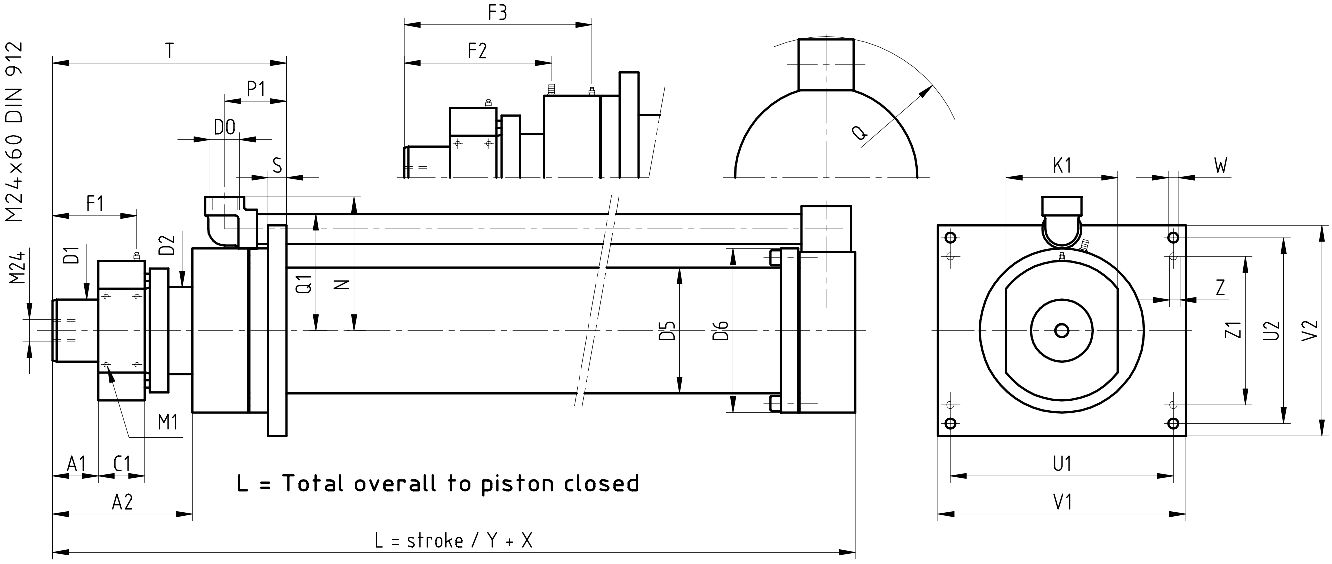
Synchronized telescopic 2 stage cylinder with/without yoke guide acc. to TRA 200 - Central Direct System



Typ	3PL - VT B										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
A1	26	26	26	26	26	26	40	40	40	40	40
A2	120	120	120	120	125	130	155	160	175	173	180
C1	70	70	70	70	70	70	75	85	95	95	95
D1	35	42	50	63	70	85	100	120	140	170	200
D2	50	60	70	85	100	120	140	170	200	240	290
D5	70	88. 9	95	121	139, 7	168, 3	193, 7	244, 5	273	323, 9	394
D6	110	135	147	180	200	225	260	315	350	400	470
D0	G 3/4"	G1"	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	83	102	112	122	117	117
F2	133	133	133	133	138	143	169	182	196	194	201
F3	177	177	177	177	187	192	227	242	262	265	272
K1	90	95	100	110	135	150	180	215	255	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12	M12	M12
N	110	130	137	169	184	195	232	281	300	315	365
P1	85	86	86	100	100	101	150	150	150	150	160
Q	104	128	134	159	174	184	201	239	258	284	317
Q1 max	89	107	115	142	157	168	205	251	270	285	335
S	20	20	20	30	30	30	35	35	40	40	45
T	234	235	234	244	260	265	309	330	345	415	430
U1	200	200	200	230	260	300	400	460	500	530	630
U2	160	160	160	180	210	260	400	460	500	530	630
V1	240	240	240	270	300	340	470	560	600	630	730
V2	200	200	200	220	250	300	470	560	600	630	730
W	16	16	16	16	16	16	19	24	24	28	28
X	415	441	441	458	472	480	592	587	686	685	800
Y	1, 898	1, 980	1, 930	1, 990	1, 898	1, 997	1, 998	1, 997	1, 997	1, 998	1, 995
Z	M12	M12	M12	M12	M12	M12	M16	M16	M16	M16	M20
Z1	100	100	100	120	150	200	320	380	400	430	530
p stat.	64	64	64	64	64	64	64	64	64	64	64
m H0 (kg)	29, 1	39, 0	45, 5	70, 7	96, 6	123, 0	207, 3	311, 7	420, 0	622, 0	942, 7
m HM (kg)	14, 9	17, 7	20, 9	33, 8	47, 5	65, 0	59, 8	104, 6	111, 2	144, 8	231, 1

p stat. : max static pressure (bar) acc. to TRA 200
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT

Con riserva di modifica / Subject to change
Aenderungen vorbehalten / Sous réserve de modification

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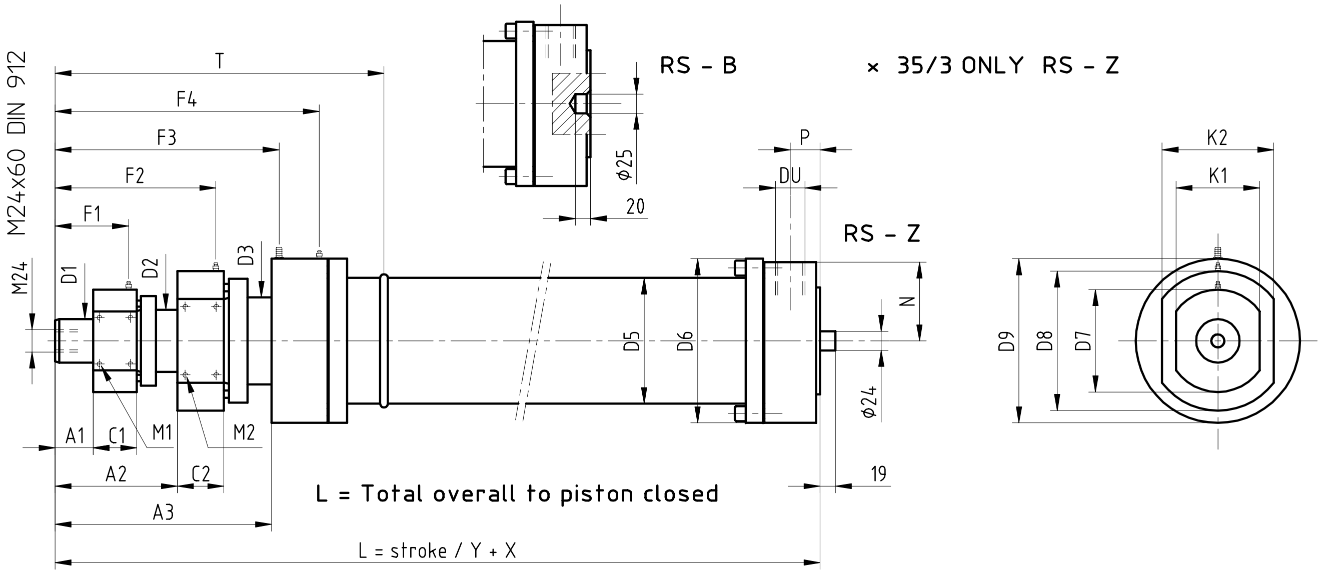
Synchronized telescopic 3 stage cylinder acc. to TRA 200 and EN 81.2 - Side Ram System



Typ	3 PL - RS Z / B								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	26	26	26	26	26	40	40	40	40
A2	120	120	120	120	125	144	155	160	175
A3	222	223	217	220	240	256	280	293	315
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101, 6	127	146	177, 8	203	244, 5	298. 5	355. 6	419
D6	150	175	200	228	265	310	360	435	500
D7	110	125	132	150	165	185	225	265	295
D8	135	150	165	185	225	250	295	340	400
D9	145	165	200	220	265	310	360	435	500
DU	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	97	102	112	122
F2	177	177	177	177	182	206	227	242	257
F3	235	236	230	233	253	272	294	314	336
F4	279	285	279	282	317	323	362	385	407
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	68	80	93	105	127	147	175	214	245
P	40	47	47	50	47	50	50	50	55
T	380	380	380	380	400	420	470	500	650
X	530	551	565	571	600	700	783	833	935
Y	2, 879	2, 976	2, 843	2, 982	2, 883	2, 993	2, 970	2, 995	2, 972
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	42, 0	59, 5	83, 7	111, 3	161, 9	245, 0	383, 5	594, 1	889, 8
m HM (kg)	12, 2	19, 1	25, 7	36, 5	47, 5	65, 1	91, 3	125, 0	172, 9
p stat. : max static pressure (bar) acc. to EN 81 - 2 / TRA200									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

Con riserva di modifica / Subject to change
Aenderungen vorbehalten / Sous réserve de modification

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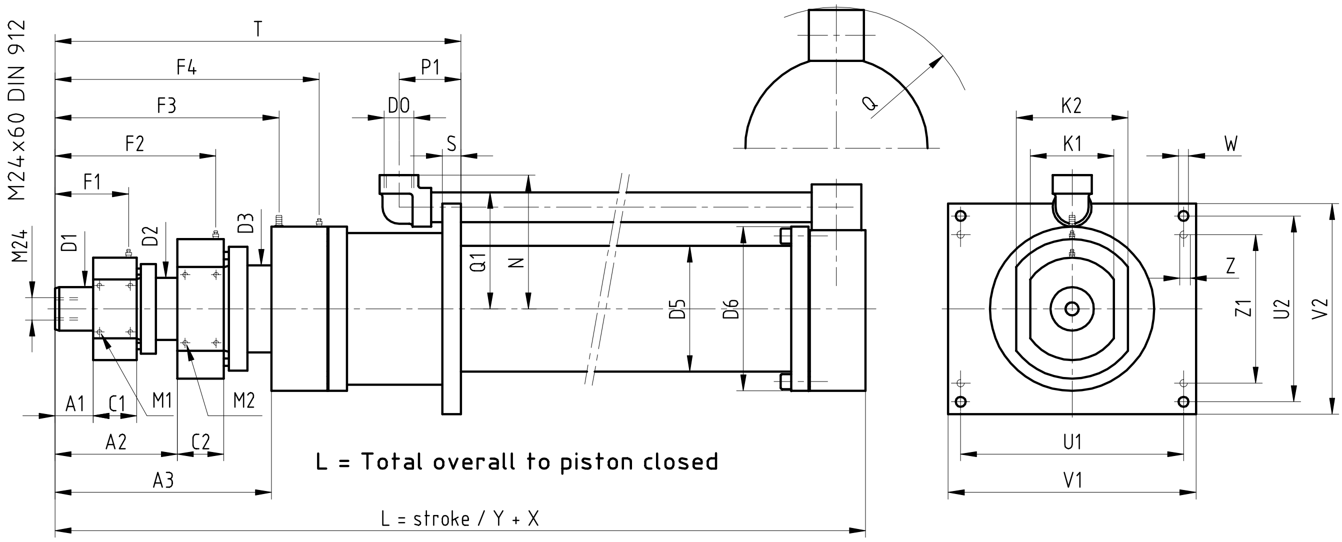
Synchronized telescopic 3 stage cylinder without yoke guide acc. to EN 81.2 - Central Direct System



Typ	3 PL - VE-B/X0								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	26	26	26	26	26	40	40	40	40
A2	120	120	120	120	125	144	155	160	175
A3	222	223	217	220	240	256	280	293	315
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101, 6	127	146	177, 8	203	244, 5	298. 5	355. 6	419
D6	150	175	200	228	265	310	360	435	500
D0	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	97	102	112	122
F2	177	177	177	177	182	206	227	242	257
F3	235	236	230	233	253	272	294	314	336
F4	279	285	279	282	317	323	362	385	407
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	137	169	195	204	216	280	300	350	365
P1	85	107	100	100	100	140	150	160	165
Q	132	159	172	183	205	235	263	301	334
Q1 max	115	142	167	177	189	250	270	320	335
S	20	30	30	30	30	35	40	45	45
T	500	500	500	500	500	500	510	680	680
U1	200	230	260	300	360	460	500	600	630
U2	160	180	210	260	300	460	500	600	630
V1	240	270	300	340	400	560	600	700	730
V2	200	220	250	300	340	560	600	700	730
W	16	16	16	16	16	24	24	28	28
X	530	551	565	571	600	700	783	833	935
Y	2, 879	2, 976	2, 843	2, 982	2, 883	2, 993	2, 970	2, 995	2, 972
Z	M12	M12	M12	M12	M12	M16	M16	M16	M20
Z1	100	120	150	200	240	380	420	500	530
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	56, 7	81, 9	116, 0	147, 2	202, 4	341, 1	496, 4	792, 5	1082, 2
m HM (kg)	13, 4	21, 2	27, 9	38, 7	49, 7	68, 2	94, 4	128, 1	176, 0
p stat. : max static pressure (bar) acc. to EN 81 - 2									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

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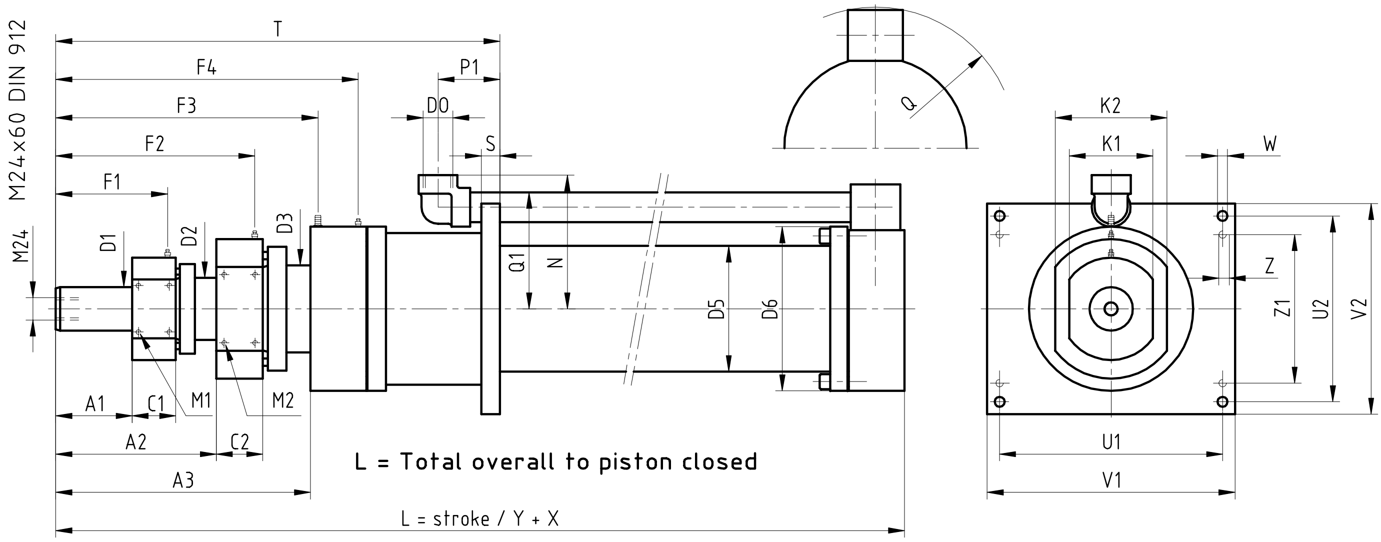
info@ coam- spa. com www. coam- spa. com

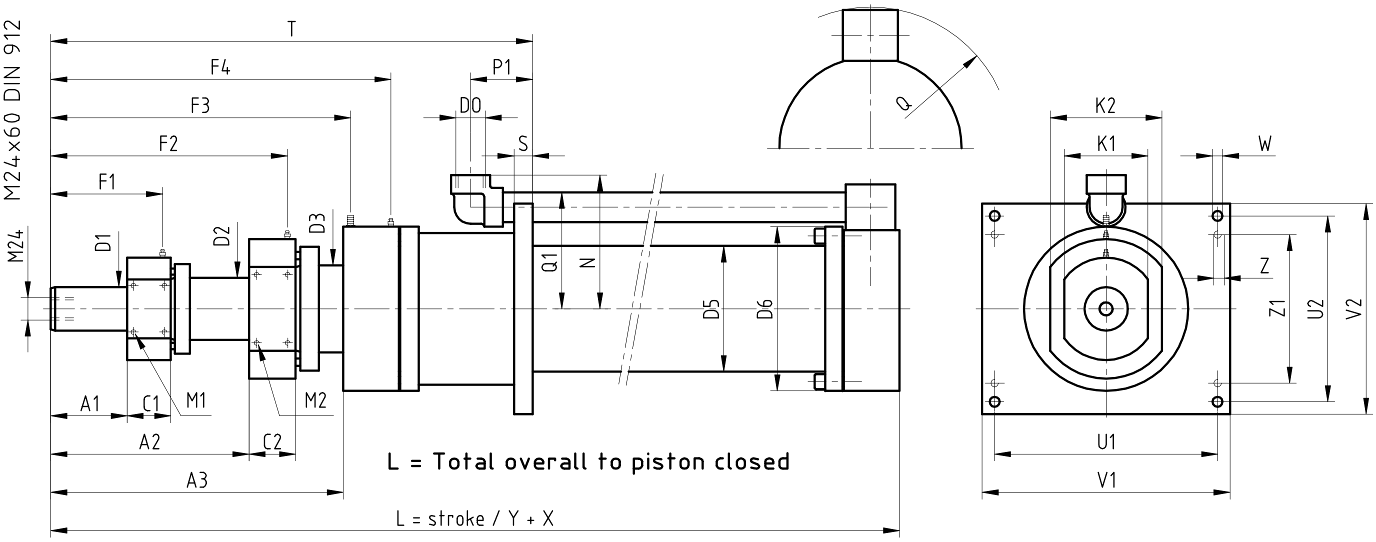
Synchronized telescopic 3 stage cylinder with yoke guide for 2 stage - acc. to EN 81.2 - Central Direct System



Typ	3 PL - VE-B/Y2/Z2								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	300	300	300	300	300	300	300	300	300
A2	394	394	394	394	399	404	415	420	435
A3	496	497	491	494	514	516	540	553	575
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101, 6	127	146	177, 8	203	244, 5	298. 5	355. 6	419
D6	150	175	200	228	265	310	360	435	500
D0	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	357	357	357	357	357	357	362	372	382
F2	451	451	451	451	456	466	487	502	517
F3	509	510	504	507	527	532	554	574	596
F4	553	559	553	556	591	583	622	645	667
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	137	169	195	204	216	280	300	350	365
P1	85	107	100	100	100	140	150	160	165
Q	132	159	172	183	205	235	263	301	334
Q1 max	115	142	167	177	189	250	270	320	335
S	20	30	30	30	30	35	40	45	45
T	870	870	870	870	870	870	885	940	940
U1	200	230	260	300	360	460	500	600	630
U2	160	180	210	260	300	460	500	600	630
V1	240	270	300	340	400	560	600	700	730
V2	200	220	250	300	340	560	600	700	730
W	16	16	16	16	16	24	24	28	28
X	804	825	839	845	874	960	1043	1093	1195
Y	2, 879	2, 976	2, 843	2, 982	2, 883	2, 993	2, 970	2, 995	2, 972
Z	M12	M12	M12	M12	M12	M16	M16	M16	M20
Z1	100	120	150	200	240	380	420	500	530
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	63, 5	90, 7	130, 4	164, 3	222, 3	373, 2	533, 7	802, 2	1093, 3
m HM (kg)	13, 4	21, 2	27, 9	38, 7	49, 7	68, 2	94, 4	128, 1	176, 0
p stat. : max static pressure (bar) acc. to EN 81 - 2									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

C. O. A. M. srl - via noalese sud 66 30030 Pianiga VE. Tel +39 041 468 966
info@ coam- spa. com   www. coam- spa. com

Synchronized telescopic 3 stage cylinder with yoke guide for 2 stage and 3 stage - acc. to EN 81.2 - Central Direct System



Typ	3 PL - VE-B/Y3/Z3								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	300	300	300	300	300	300	300	300	300
A2	670	670	670	670	670	670	675	685	695
A3	772	773	767	770	785	782	800	818	835
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101, 6	127	146	177, 8	203	244, 5	298. 5	355. 6	419
D6	150	175	200	228	265	310	360	435	500
D0	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	357	357	357	357	357	357	362	372	382
F2	727	727	727	727	727	732	747	767	777
F3	785	786	780	783	798	798	814	839	856
F4	829	835	829	832	862	849	882	910	927
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	137	169	195	204	216	280	300	350	365
P1	85	107	100	100	100	140	150	160	165
Q	132	159	172	183	205	235	263	301	334
Q1 max	115	142	167	177	189	250	270	320	335
S	20	30	30	30	30	35	40	45	45
T	1240	1240	1240	1240	1245	1245	1270	1300	1300
U1	200	230	260	300	360	460	500	600	630
U2	160	180	210	260	300	460	500	600	630
V1	240	270	300	340	400	560	600	700	730
V2	200	220	250	300	340	560	600	700	730
W	16	16	16	16	16	24	24	28	28
X	1080	1101	1115	1121	1145	1226	1303	1358	1455
Y	2, 879	2, 976	2, 843	2, 982	2, 883	2, 993	2, 970	2, 995	2, 972
Z	M12	M12	M12	M12	M12	M16	M16	M16	M20
Z1	100	120	150	200	240	380	420	500	530
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	72, 8	103, 1	149, 1	187, 0	252, 4	417, 6	509, 2	863, 5	1166, 8
m HM (kg)	13, 4	21, 2	27, 9	38, 7	49, 7	68, 2	94, 4	128, 1	176, 0
p stat. : max static pressure (bar) acc. to EN 81 - 2									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

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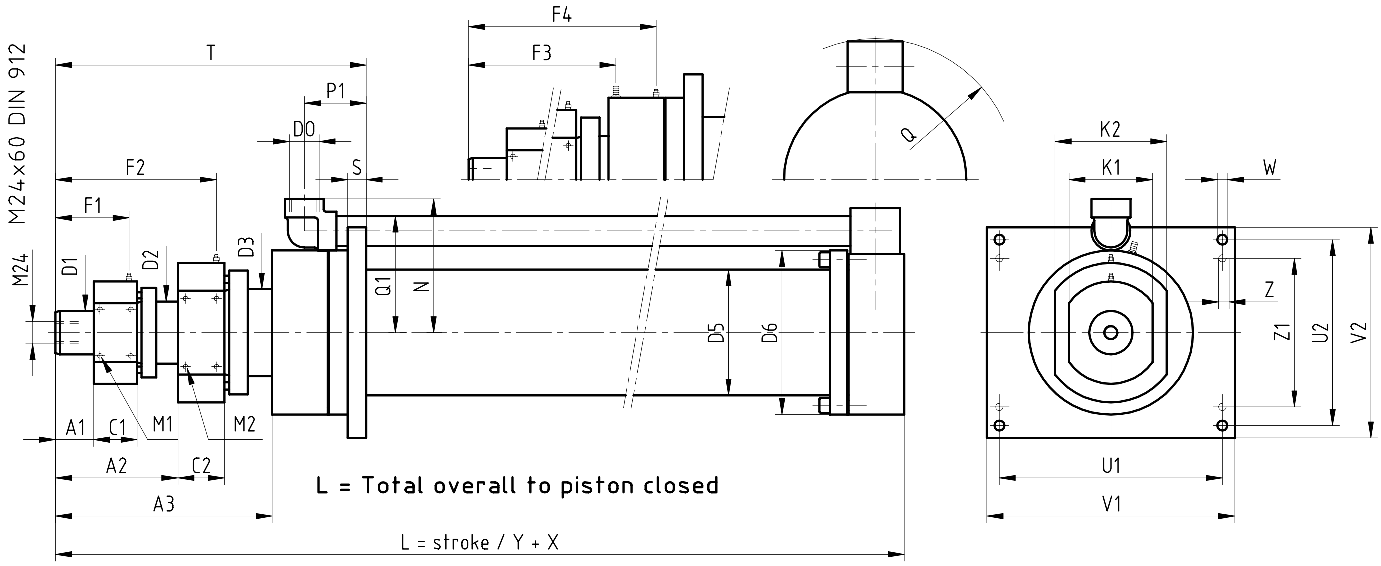
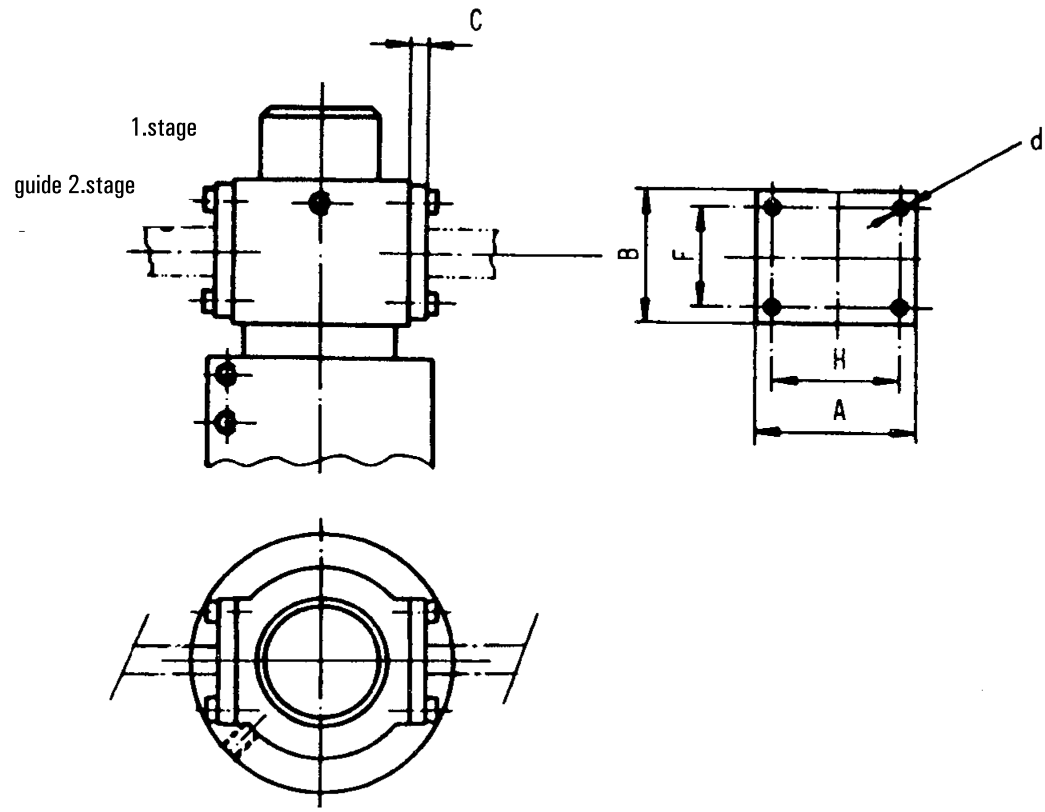
Synchronized telescopic 3 stage cylinder with/without yoke guide acc. to TRA 200 - Central Direct System



Typ	3 PL - VT B								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
A1	26	26	26	26	26	40	40	40	40
A2	120	120	120	120	125	144	155	160	175
A3	222	223	217	220	240	256	280	293	315
C1	70	70	70	70	70	70	75	85	95
C2	70	70	70	70	75	75	85	95	95
D1	35	42	50	63	70	85	100	120	140
D2	50	60	70	85	100	120	140	170	200
D3	70	85	100	120	140	170	200	240	290
D5	101, 6	127	146	177, 8	203	244, 5	298. 5	355. 6	419
D6	150	175	200	228	265	310	360	435	500
D0	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2	G 2"	G 2"	G 2"	G 2"
F1	83	83	83	83	83	97	102	112	122
F2	177	177	177	177	182	206	227	242	257
F3	235	236	230	233	253	272	294	314	336
F4	279	285	279	282	317	323	362	385	407
K1	90	95	100	110	135	150	180	215	255
K2	100	110	140	150	180	210	250	290	340
M1	M8	M8	M8	M8	M8	M8	M8	M12	M12
M2	M8	M8	M8	M8	M8	M8	M12	M12	M12
N	137	169	195	204	216	280	300	350	365
P1	85	107	100	100	100	140	150	160	165
Q	132	159	172	183	205	235	263	301	334
Q1 max	115	142	167	177	189	250	270	320	335
S	20	30	30	30	30	35	40	45	45
T	336	355	352	355	390	401	450	540	565
U1	200	230	260	300	360	460	500	600	630
U2	160	180	210	260	300	460	500	600	630
V1	240	270	300	340	400	560	600	700	730
V2	200	220	250	300	340	560	600	700	730
W	16	16	16	16	16	24	24	28	28
X	530	551	565	571	600	700	783	833	935
Y	2, 879	2, 976	2, 843	2, 982	2, 883	2, 993	2, 970	2, 995	2, 972
Z	M12	M12	M12	M12	M12	M16	M16	M16	M20
Z1	100	120	150	200	240	380	420	500	530
p stat.	49	50	49	46	49	46	50	51	51
m H0 (kg)	50, 0	74, 8	102, 0	133, 3	190, 2	323, 6	480, 5	736, 4	1048, 8
m HM (kg)	13, 4	21, 2	27, 9	38, 7	49, 7	68, 2	94, 4	128, 1	176, 0
p stat. : max static pressure (bar) acc. to TRA200									
OIL FILLING ROLOIL ARM 68 OR EQUIVALENT									

Yoke plates for Telescopic Cylinders, 2 - stage
Type 3PL



Screws for Yoke Plates : M 8 x 25 for d = 10
M12 x 35 for d = 14

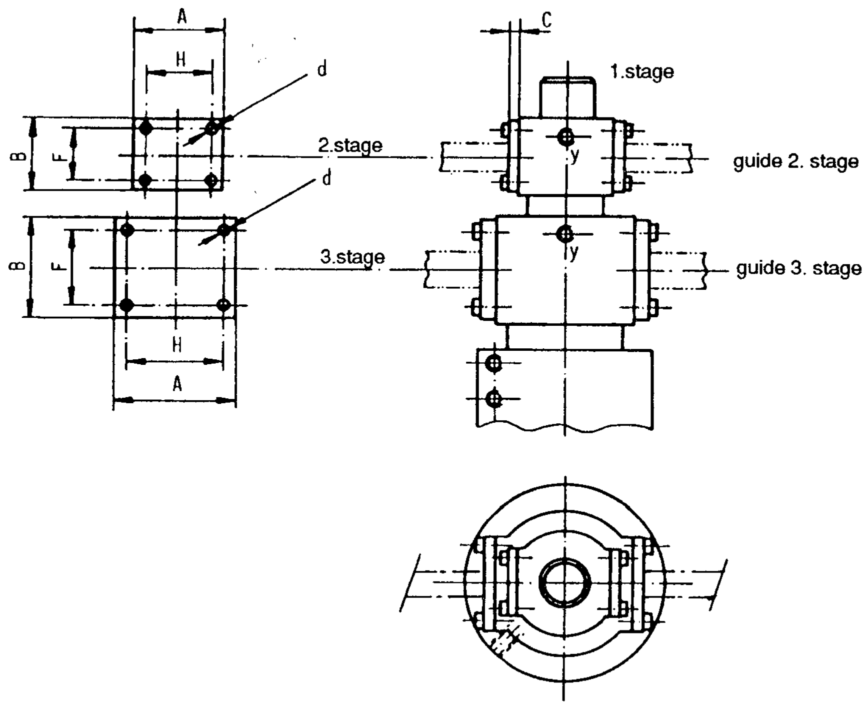
Type of Cylinder	Stage	Dimensions of Yoke Plate A	B	C	F	H	d
3PL 35/2	2	60	70	10	50	40	10
3PL 42/2	2	80	70	10	50	60	10
3PL 50/2	2	85	70	10	50	65	10
3PL 63/2	2	100	70	10	50	80	10
3PL 70/2	2	95	70	10	50	75	10
3PL 85/2	2	105	70	10	50	85	10
3PL 100/2	2	135	70	10	50	110	10
3PL 120/2	2	150	80	15	60	115	14
3PL 140/2	2	150	80	15	60	115	14
3PL 170/2	2	170	80	15	60	140	14
3PL 200/2	2	210	80	15	60	180	14

All dimensions are given in mm

Yoke plates have to be ordered together with the cylinder (.... Z2 acc. to order code). The yoke plates incl. the screws will be delivered already mounted to the cylinder. The guide yoke is **not** part of supply.

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

Yoke plates for Telescopic Cylinders, 3 - stage
Type 3PL



Screws for Yoke Plates : M 8 x 25 for d = 10
M12 x 35 for d = 14

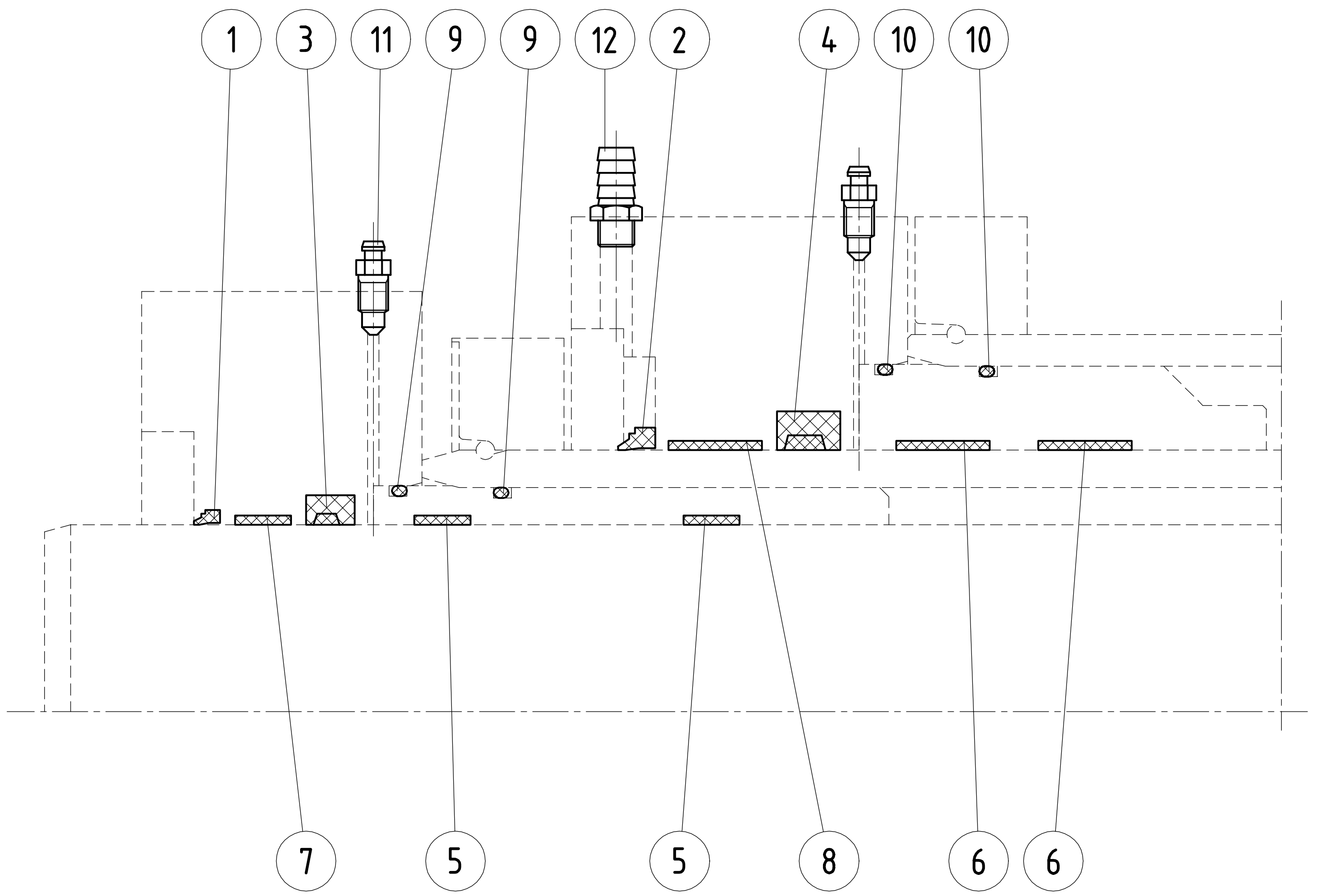
Type of Cylinder	Stage	Dimensions of Yoke Plate					
		A	B	C	F	H	d
3PL 35/3	2	60	70	10	50	40	10
	3	85	70	10	50	65	10
3PL 42/3	2	80	70	10	50	60	10
	3	100	70	10	50	80	10
3PL 50/3	2	85	70	10	50	65	10
	3	90	70	10	50	70	10
3PL 63/3	2	100	70	10	50	80	10
	3	105	70	10	50	85	10
3PL 70/3	2	95	70	10	50	75	10
	3	135	70	10	50	110	10
3PL 85/3	2	105	70	10	50	85	10
	3	135	70	10	50	110	10
3PL 100/3	2	135	70	10	50	110	10
	3	150	80	15	60	115	14
3PL 120/3	2	150	80	15	60	115	14
	3	170	80	15	60	140	14
3PL 140/3	2	150	80	15	60	115	14
	3	210	80	15	60	180	14

All dimensions are given in mm

Yoke plates have to be ordered together with the cylinder (.... Z2 or .... Z3 acc. to order code). The yoke plates incl. the screws will be delivered already mounted to the cylinder. The guide yoke is **not** part of supply.

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

b) Mod. N° 0314 del 06-06-2002 P.G.



	3 PL - RS - VE - VT										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
1	9 XQ 0361	9 XQ 0377	9 XQ 0365	9 XQ 0379	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374	9 XQ 0367	9 XQ 0165
2	9 XQ 0365	9 XQ 0380	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374	9 XQ 0367	9 XQ 0165	9 XQ 0169	9 XQ 0174
3	9 XQ 2253	9 XQ 2254	9 XQ 2200	9 XQ 2203	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2221	9 XQ 2227	9 XQ 2234
4	9 XQ 2200	9 XQ 2250	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2221	9 XQ 2227	9 XQ 2234	9 XQ 2240	9 XQ 2247
5	9 XQ 2377	9 XQ 2302	9 XQ 2300	9 XQ 2303	9 XQ 2304	9 XQ 2379	9 XQ 2310	9 XQ 2314	9 XQ 2318	9 XQ 2324	9 XQ 2330
6	9 XQ 2300	9 XQ 2378	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318	9 XQ 2324	9 XQ 2330	9 XQ 2338	9 XQ 2348
7	9 XQ 2377	9 XQ 2302	9 XQ 2300	9 XQ 2303	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318	9 XQ 2324	9 XQ 2330
8	9 XQ 2300	9 XQ 2378	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2382	9 XQ 2386	9 XQ 2383	9 XQ 2338	9 XQ 2348
9	9 XQ 5117	9 XQ 5121	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5246	9 XQ 5253	9 XQ 5259	9 XQ 5266	9 XQ 5273	9 XQ 5278
10	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5248	9 XQ 5253	9 XQ 5261	9 XQ 5267	9 XQ 5272	9 XQ 5278	9 XQ 5455	9 XQ 5465
11	9 YP 3201										
12	9 YP 3202										
1÷10	3 PD 0170	3 PD 0208	3 PD 0171	3 PD 0172	3 PD 0173	3 PD 0174	3 PD 0175	3 PD 0176	3 PD 0177	3 PD 0178	3 PD 0179

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

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C.O.A.M. S.p.A.
COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI

PEZZI DI RICAMBIO PER PISTONI TELESCOPICI
PARTS LIST FOR TELESCOPIC CYLINDERS
ERSATZTEILE FUER TELESKOPZYLINDER
PIECES DE RECHANGE POUR VERINS TELESCOPIQUES

3 PL/2

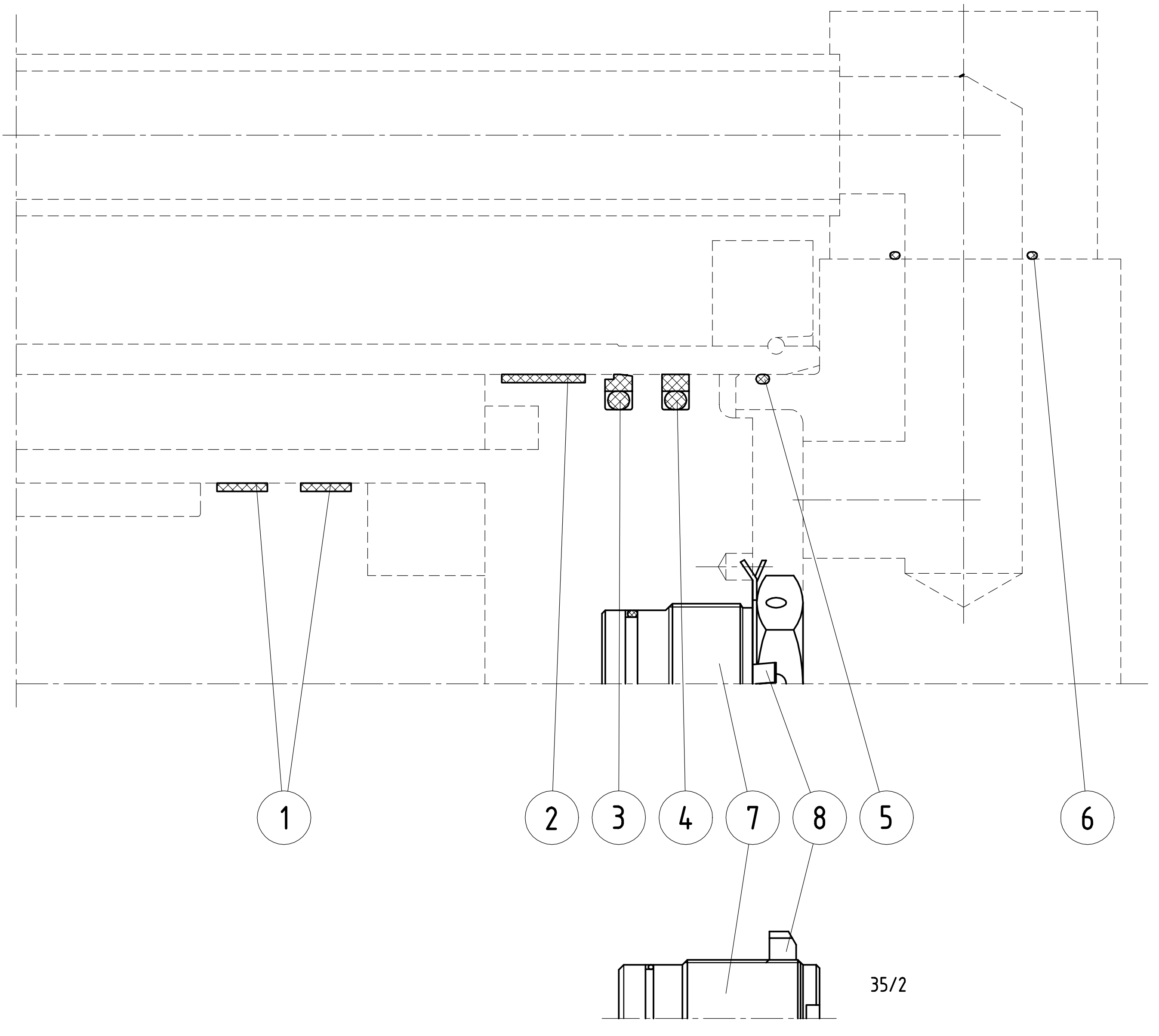
Disegnato	Paolo G.	16-09-1998
Controllato		
Nullaosta		

Sost. il	2 PX 0276 a
Sost. dal	

DOCUMENTAZIONI TECNICHE 2 P X 0 2 7 6 b

Pag. 1 di 4

b) Mod. N° 0314 del 06-06-2002 P.G.



	3 PL - RS - VE - VT										
	35/2	42/2	50/2	63/2	70/2	85/2	100/2	120/2	140/2	170/2	200/2
1	9 XQ 2401	9 XQ 2402	9 XQ 2404	9 XQ 2406	9 XQ 2408	9 XQ 2429	9 XQ 2413	9 XQ 2415	9 XQ 2418	9 XQ 2421	9 XQ 2423
2	9 XQ 2405	9 XQ 2407	9 XQ 2409	9 XQ 2411	9 XQ 2413	9 XQ 2416	9 XQ 2430	9 XQ 2420	9 XQ 2423	9 XQ 2425	9 XQ 2427
3	9 XQ 2603	9 XQ 2604	9 XQ 2606	9 XQ 2609	9 XQ 2611	9 XQ 2614	9 XQ 2616	9 XQ 2618	9 XQ 2621	9 XQ 2623	9 XQ 2625
4	9 XQ 2703	9 XQ 2704	9 XQ 2706	9 XQ 2709	9 XQ 2711	9 XQ 2714	9 XQ 2716	9 XQ 2718	9 XQ 2721	9 XQ 2723	9 XQ 2725
5	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5248	9 XQ 5253	9 XQ 5261	9 XQ 5267	9 XQ 5272	9 XQ 5278	9 XQ 5455	9 XQ 5465
6	9 XQ 5579	9 XQ 5583	9 XQ 5583	9 XQ 5590	9 XQ 5590	9 XQ 5590	9 XQ 5590	9 XQ 5600	9 XQ 5600	9 XQ 5600	9 XQ 5600
7	3 PL 5001	3 PL 5000									
8	9 XJ 0208	3 PL 5035									
1÷6	3 PD 0189	3 PD 0209	3 PD 0190	3 PD 0191	3 PD 0192	3 PD 0193	3 PD 0194	3 PD 0195	3 PD 0196	3 PD 0197	3 PD 0198

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	PEZZI DI RICAMBIO PER PISTONI TELESCOPICI PARTS LIST FOR TELESCOPIC CYLINDERS ERSATZTEILE FUER TELESKOPZYLINDER PIECES DE RECHANGE POUR VERINS TELESCOPIQUES	3 PL/2	Disegnato Paolo G.	16-09-1998
			Controllato	
			Nullaosta	
Sost. il 2 PX 0276 a	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 6 b	Pag. 2	di 4
Sost. dal				

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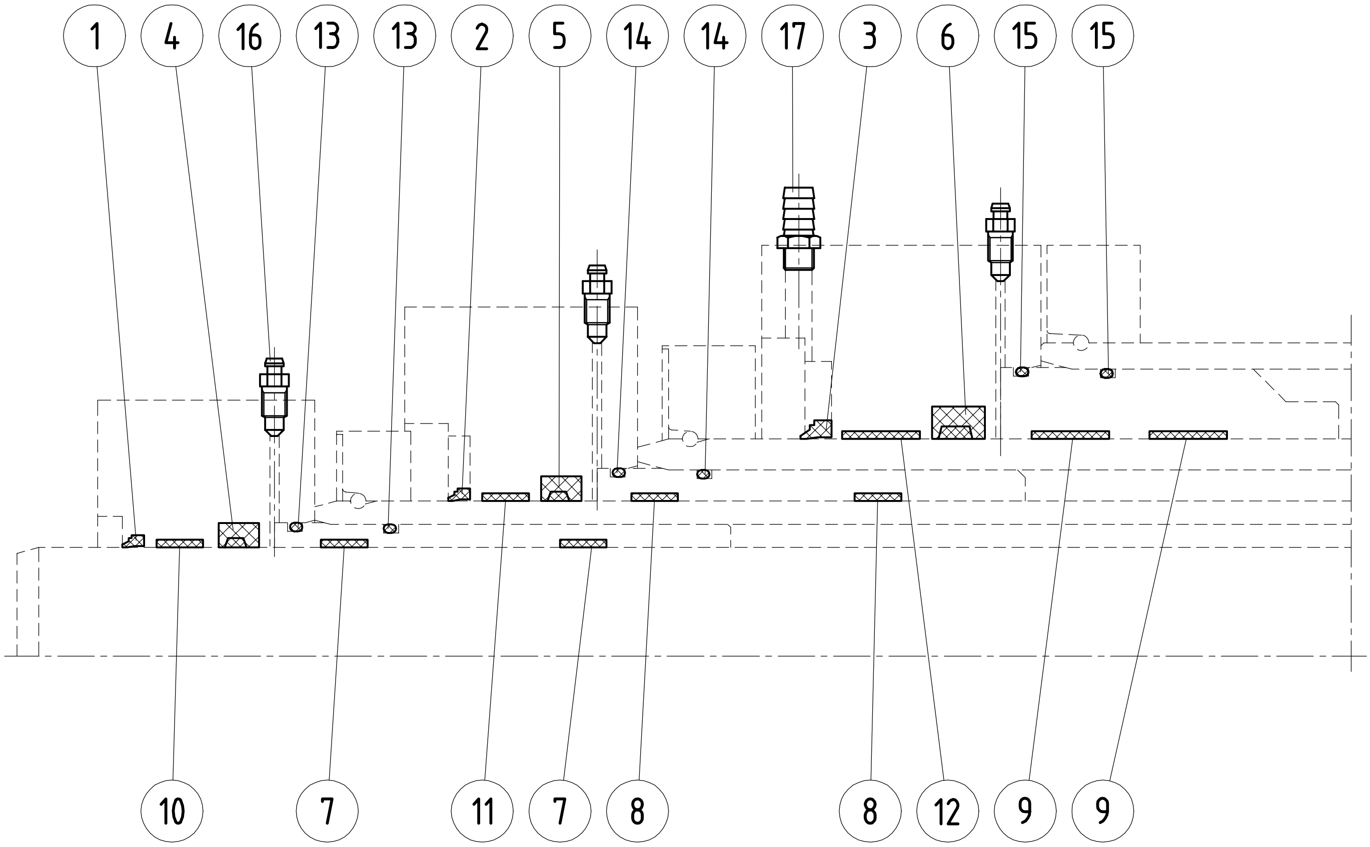
b) Mod. N° 0314 del 06-06-2002 P.G.

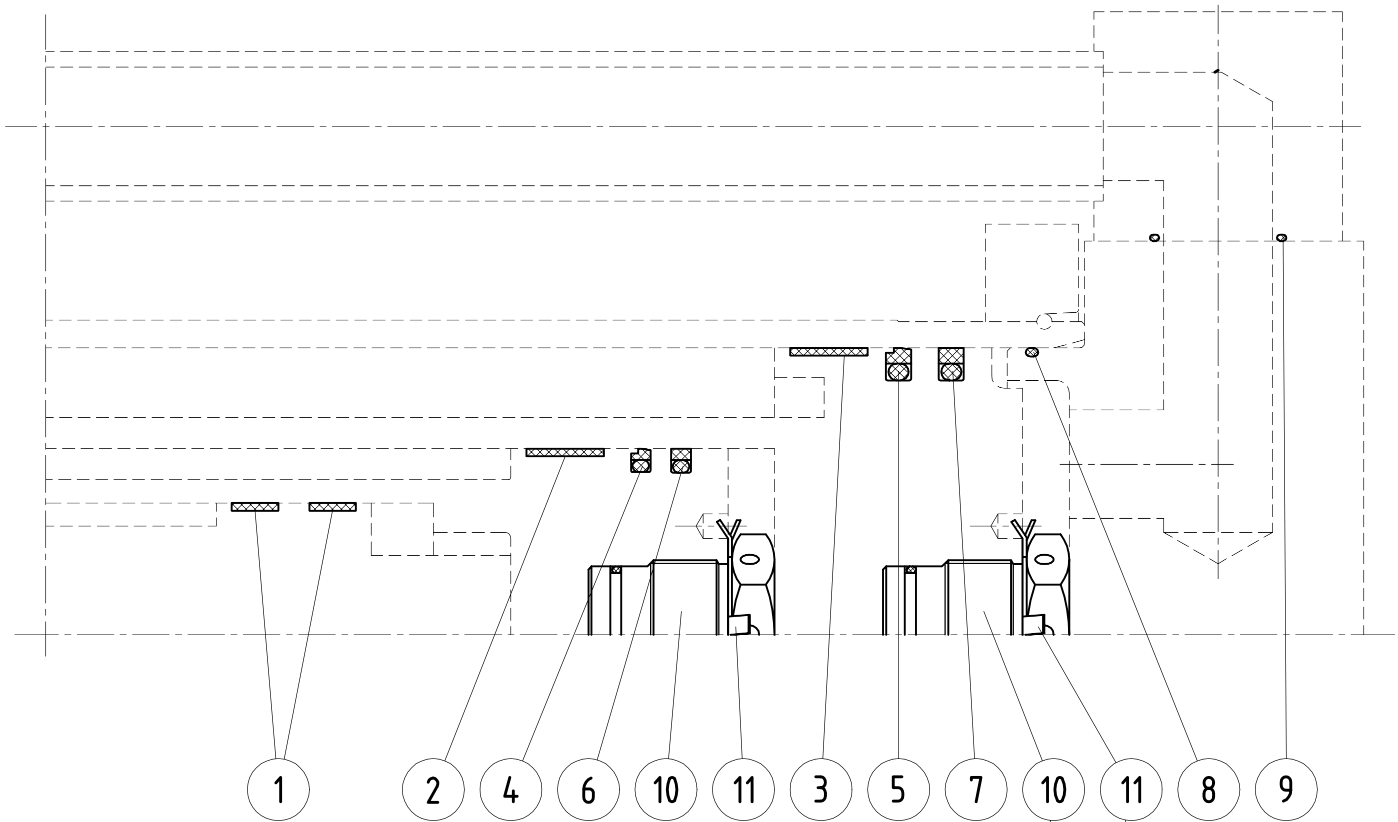


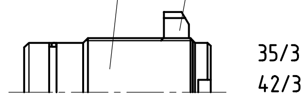
	3 PL - RS - VE - VT								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
1	9 XQ 0361	9 XQ 0377	9 XQ 0365	9 XQ 0379	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374
2	9 XQ 0365	9 XQ 0380	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374	9 XQ 0367	9 XQ 0165
3	9 XQ 0368	9 XQ 0353	9 XQ 0371	9 XQ 0381	9 XQ 0374	9 XQ 0367	9 XQ 0165	9 XQ 0169	9 XQ 0174
4	9 XQ 2253	9 XQ 2254	9 XQ 2200	9 XQ 2203	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2221
5	9 XQ 2200	9 XQ 2250	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2221	9 XQ 2227	9 XQ 2234
6	9 XQ 2204	9 XQ 2207	9 XQ 2210	9 XQ 2216	9 XQ 2221	9 XQ 2227	9 XQ 2234	9 XQ 2240	9 XQ 2247
7	9 XQ 2377	9 XQ 2378	9 XQ 2300	9 XQ 2303	9 XQ 2304	9 XQ 2379	9 XQ 2310	9 XQ 2314	9 XQ 2318
8	9 XQ 2300	9 XQ 2302	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2314	9 XQ 2318	9 XQ 2324	9 XQ 2330
9	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318	9 XQ 2324	9 XQ 2330	9 XQ 2338	9 XQ 2348
10	9 XQ 2377	9 XQ 2378	9 XQ 2300	9 XQ 2303	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318
11	9 XQ 2300	9 XQ 2302	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2382	9 XQ 2386	9 XQ 2383
12	9 XQ 2304	9 XQ 2379	9 XQ 2380	9 XQ 2381	9 XQ 2318	9 XQ 2386	9 XQ 2330	9 XQ 2338	9 XQ 2348
13	9 XQ 5117	9 XQ 5121	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5246	9 XQ 5253	9 XQ 5259	9 XQ 5266
14	9 XQ 5220	9 XQ 5232	9 XQ 5242	9 XQ 5248	9 XQ 5253	9 XQ 5261	9 XQ 5267	9 XQ 5272	9 XQ 5278
15	9 XQ 5244	9 XQ 5250	9 XQ 5256	9 XQ 5265	9 XQ 5269	9 XQ 5275	9 XQ 5281	9 XQ 5464	9 XQ 5456
16	9 YP 3201								
17	9 YP 3202								
1÷15	3 PD 0180	3 PD 0181	3 PD 0182	3 PD 0183	3 PD 0184	3 PD 0185	3 PD 0186	3 PD 0187	3 PD 0188

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F	C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	PEZZI DI RICAMBIO PER PISTONI TELESCOPICI PARTS LIST FOR TELESCOPIC CYLINDERS ERSATZTEILE FUER TELESKOPZYLINDER PIECES DE RECHANGE POUR VERINS TELESCOPIQUES 3 PL/3	Disegnato: Paolo G. 16-09-1998 Controllato Nullaosta	
	Sost. il: 2 PX 0276 a Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 6 b	Pag. 3 di 4

b) Mod. N° 0314 del 06-06-2002 P.G.





	3 PL - RS - VE - VT								
	35/3	42/3	50/3	63/3	70/3	85/3	100/3	120/3	140/3
1	9 XQ 2401	9 XQ 2402	9 XQ 2404	9 XQ 2406	9 XQ 2408	9 XQ 2429	9 XQ 2413	9 XQ 2415	9 XQ 2418
2	9 XQ 2405	9 XQ 2407	9 XQ 2409	9 XQ 2411	9 XQ 2413	9 XQ 2416	9 XQ 2430	9 XQ 2420	9 XQ 2423
3	9 XQ 2431	9 XQ 2412	9 XQ 2414	9 XQ 2417	9 XQ 2419	9 XQ 2422	9 XQ 2424	9 XQ 2426	9 XQ 2428
4	9 XQ 2603	9 XQ 2604	9 XQ 2606	9 XQ 2609	9 XQ 2611	9 XQ 2614	9 XQ 2616	9 XQ 2618	9 XQ 2621
5	9 XQ 2607	9 XQ 2610	9 XQ 2612	9 XQ 2615	9 XQ 2617	9 XQ 2620	9 XQ 2622	9 XQ 2624	9 XQ 2626
6	9 XQ 2703	9 XQ 2704	9 XQ 2706	9 XQ 2709	9 XQ 2711	9 XQ 2714	9 XQ 2716	9 XQ 2718	9 XQ 2721
7	9 XQ 2707	9 XQ 2710	9 XQ 2712	9 XQ 2715	9 XQ 2717	9 XQ 2720	9 XQ 2722	9 XQ 2724	9 XQ 2726
8	9 XQ 5244	9 XQ 5250	9 XQ 5256	9 XQ 5265	9 XQ 5269	9 XQ 5275	9 XQ 5281	9 XQ 5464	9 XQ 5456
9	9 XQ 5583	9 XQ 5590	9 XQ 5590	9 XQ 5590	9 XQ 5590	9 XQ 5600	9 XQ 5600	9 XQ 5600	9 XQ 5600
10	3 PL 5001		3 PL 5000						
11	9 XJ 0208		3 PL 5035						
1÷9	3 PD 0199	3 PD 0200	3 PD 0201	3 PD 0202	3 PD 0203	3 PD 0204	3 PD 0205	3 PD 0206	3 PD 0207

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

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C.O.A.M. S.p.A.
COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI

PEZZI DI RICAMBIO PER PISTONI TELESCOPICI
PARTS LIST FOR TELESCOPIC CYLINDERS
ERSATZTEILE FUER TELESKOPZYLINDER
PIECES DE RECHANGE POUR VERINS TELESCOPIQUES

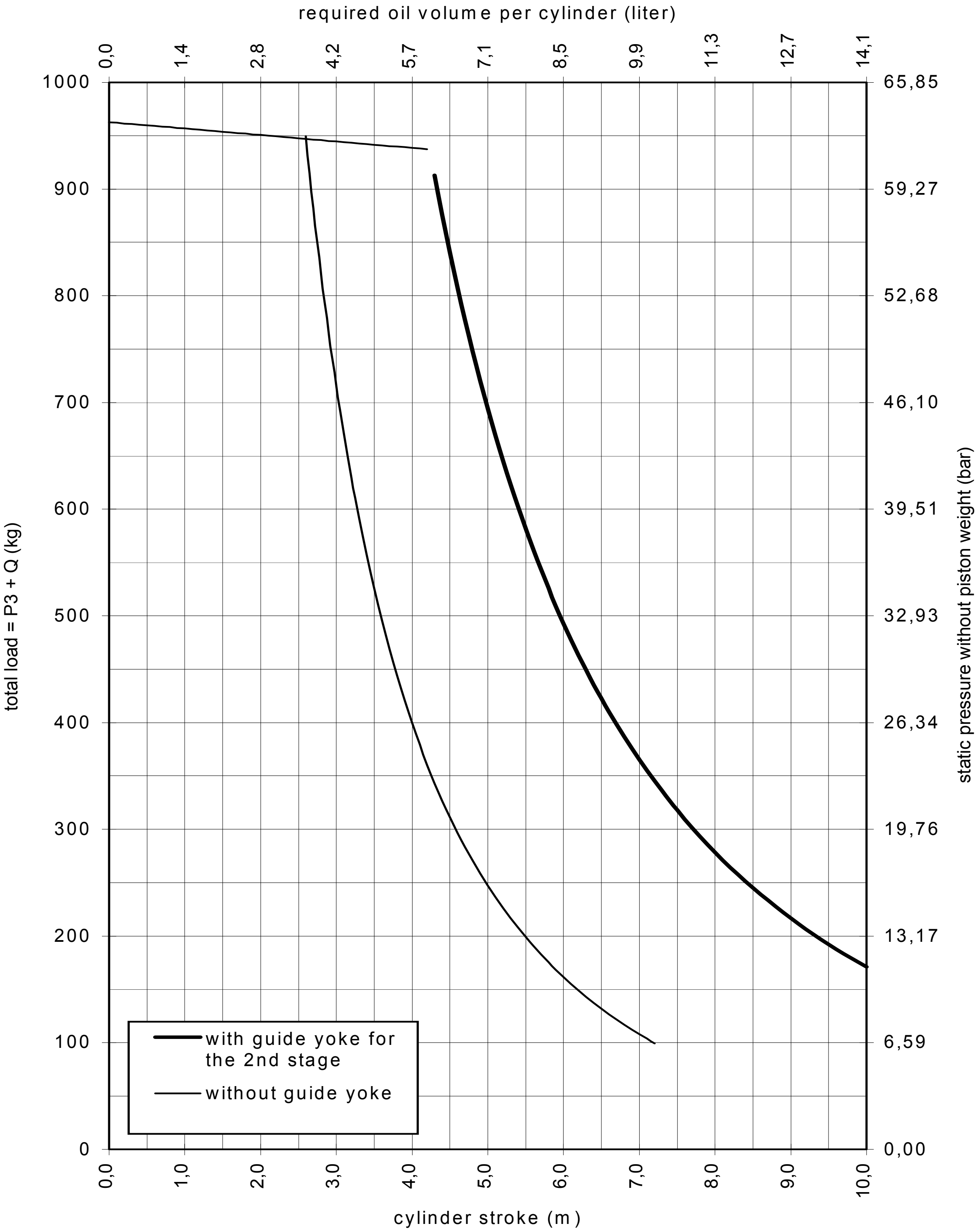
3 PL/3

Disegnato	Paolo G.	16-09-1998
Controllato		
Nullaosta		

Sost. il	2 PX 0276 a
Sost. dal	

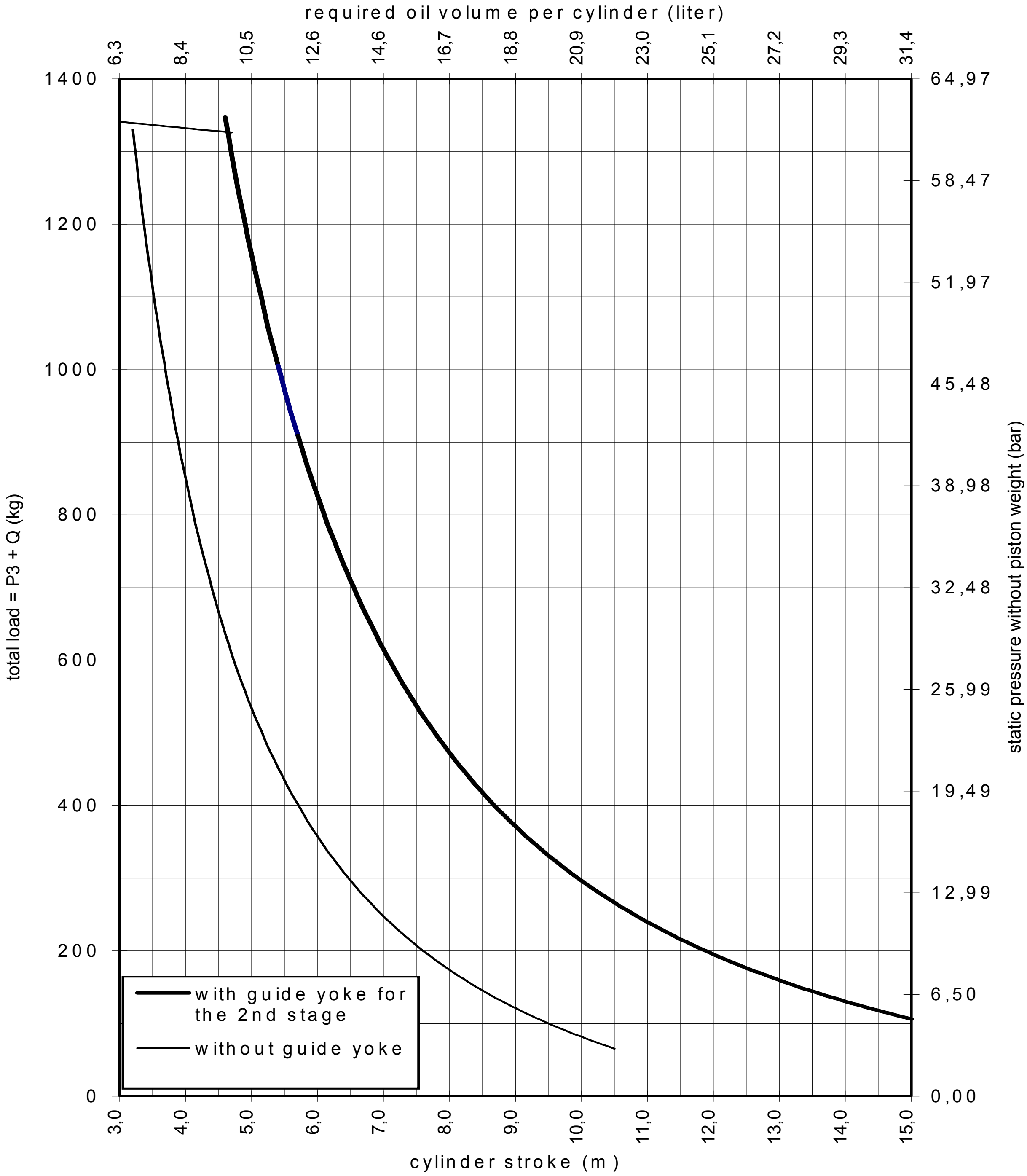
DOCUMENTAZIONI TECNICHE 2 P X 0 2 7 6 b

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 35/2 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 35 / 50 (mm)	Factor of excess pressure = 1,4
reference area	A = 14,897 (cm²)	Q = pay load (kg)
weight of piston	m_p = 11,244 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	6,045 (kg) (per meter stroke)	z = number of cylinders

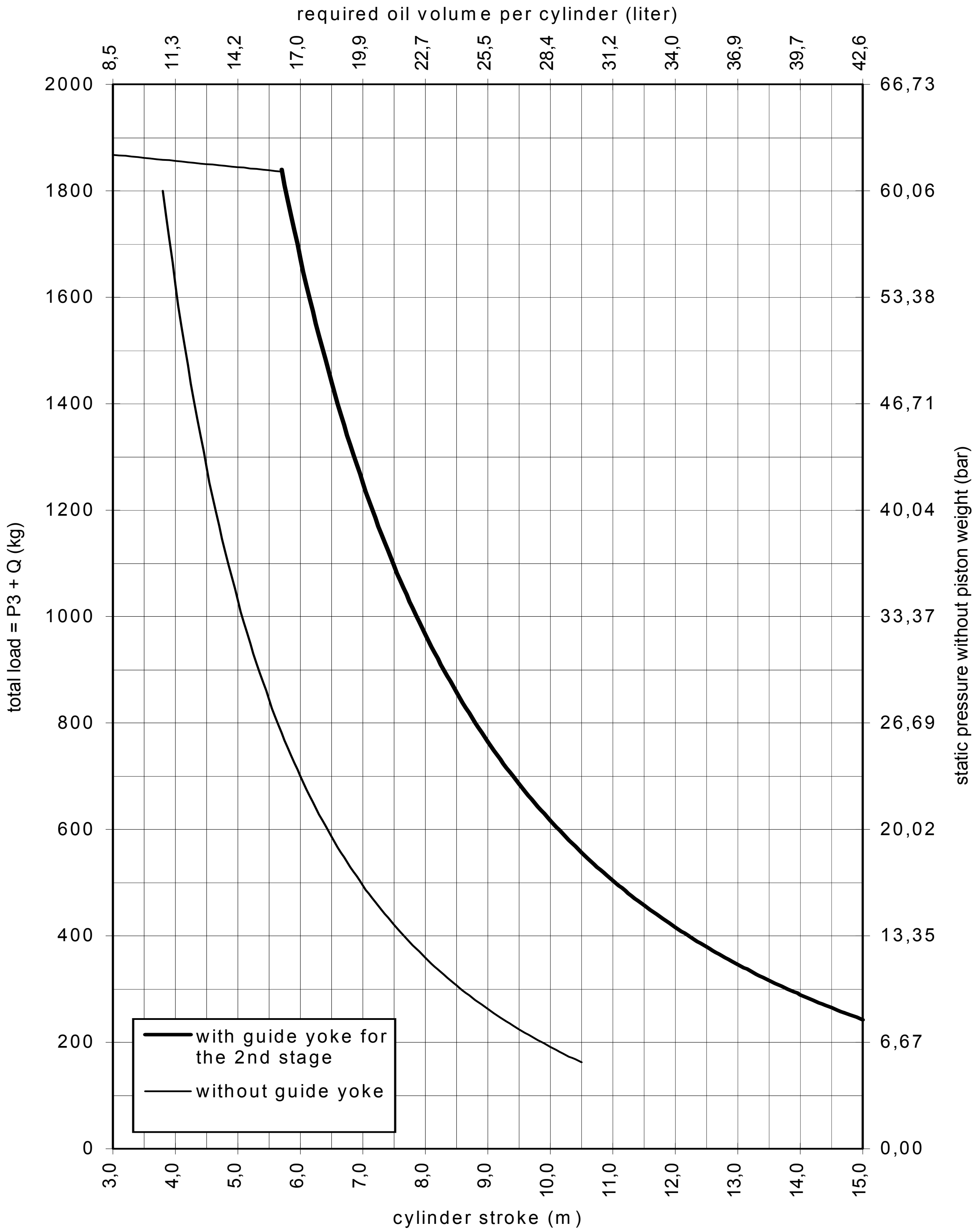
Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 42/2 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 42 / 60 (mm)	Factor of excess pressure = 1,4
reference area	A = 21,138 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 14.37 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	8,8 (kg) (per meter stroke)	z = number of cylinders

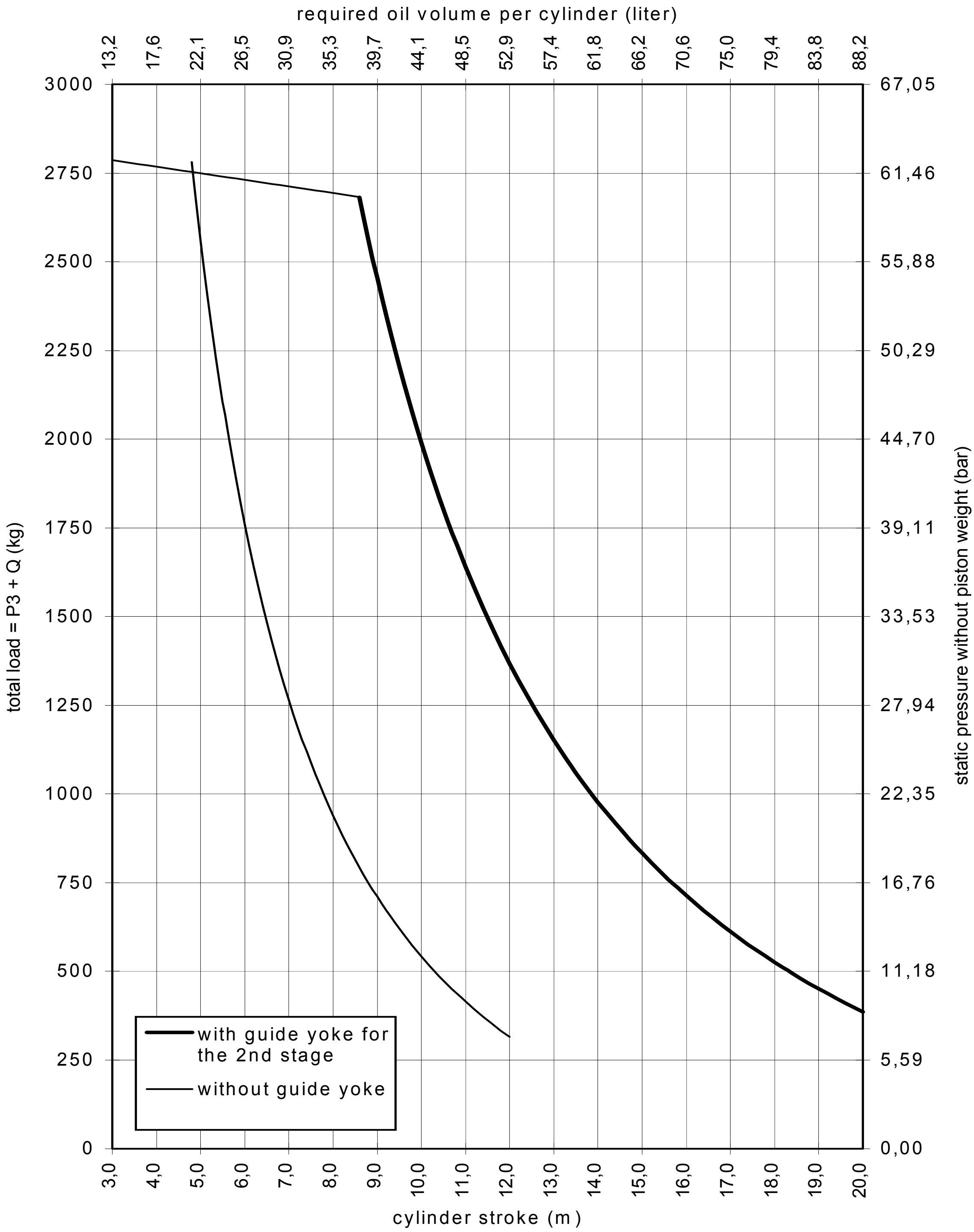
2PX0270b.doc Mod. N°0318 del 02-07-2002

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 50/2 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 50 / 70 (mm)	Factor of excess pressure = 1,4
reference area	A = 29,402 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 19,411 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	11,714 (kg) (per meter stroke)	z = number of cylinders

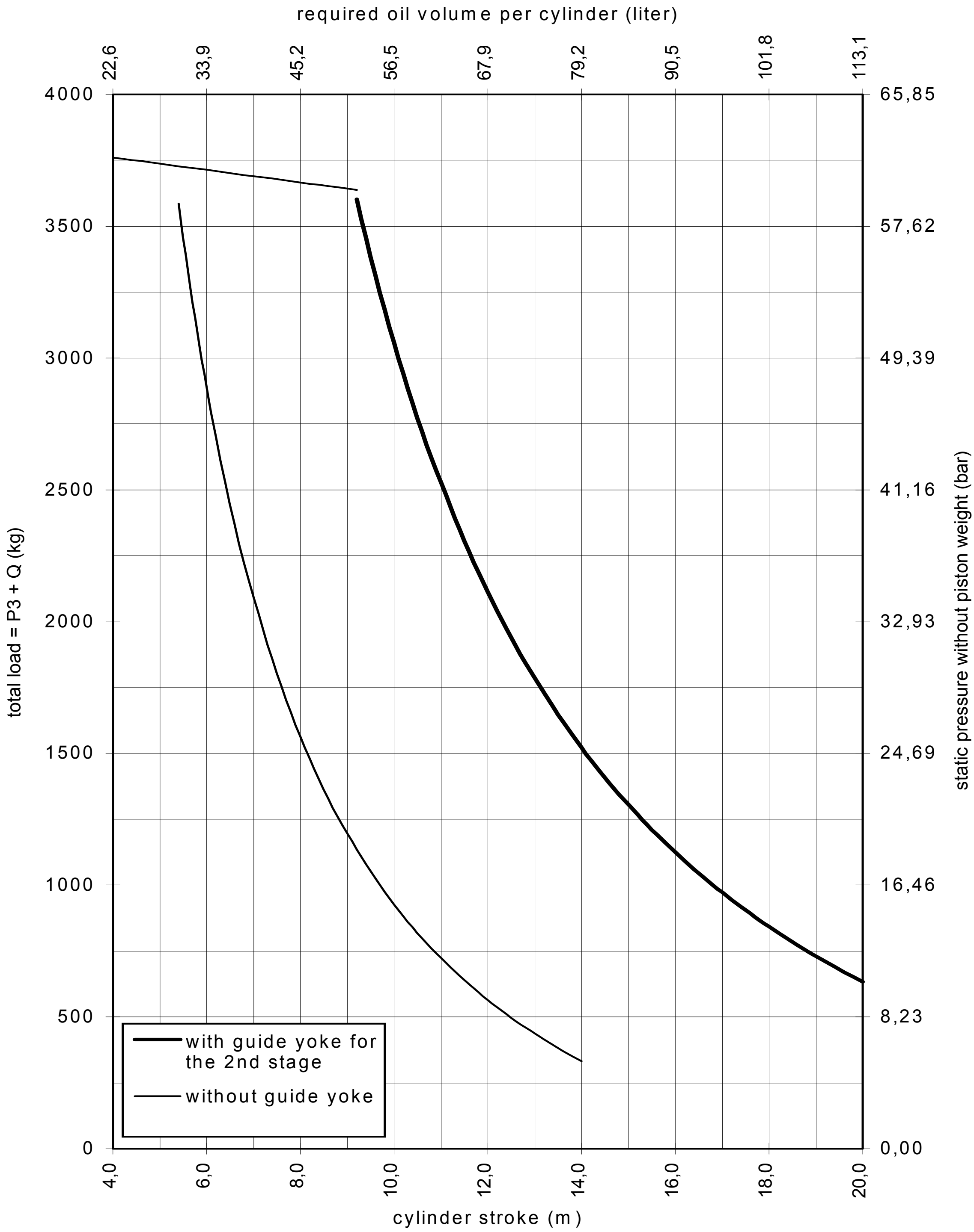
Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 63/2 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 63 / 85 (mm)	Factor of excess pressure = 1,4
reference area	A = 43,891 (cm²)	Q = pay load (kg)
weight of piston	m_p = 27,602 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	18,527 (kg) (per meter stroke)	z = number of cylinders

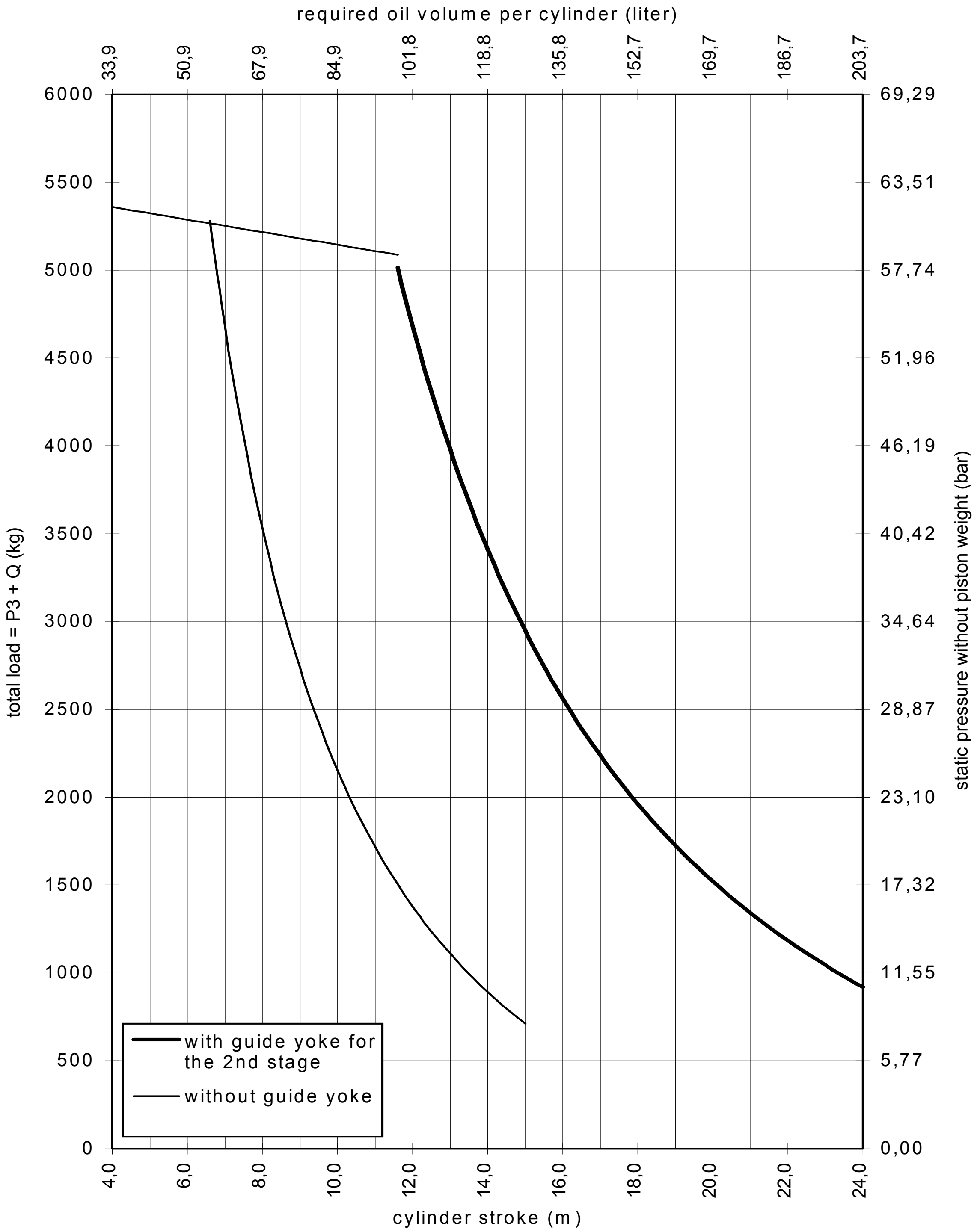
2PX0270b.doc Mod. N°0318 del 02-07-2002

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 70/2 - VE



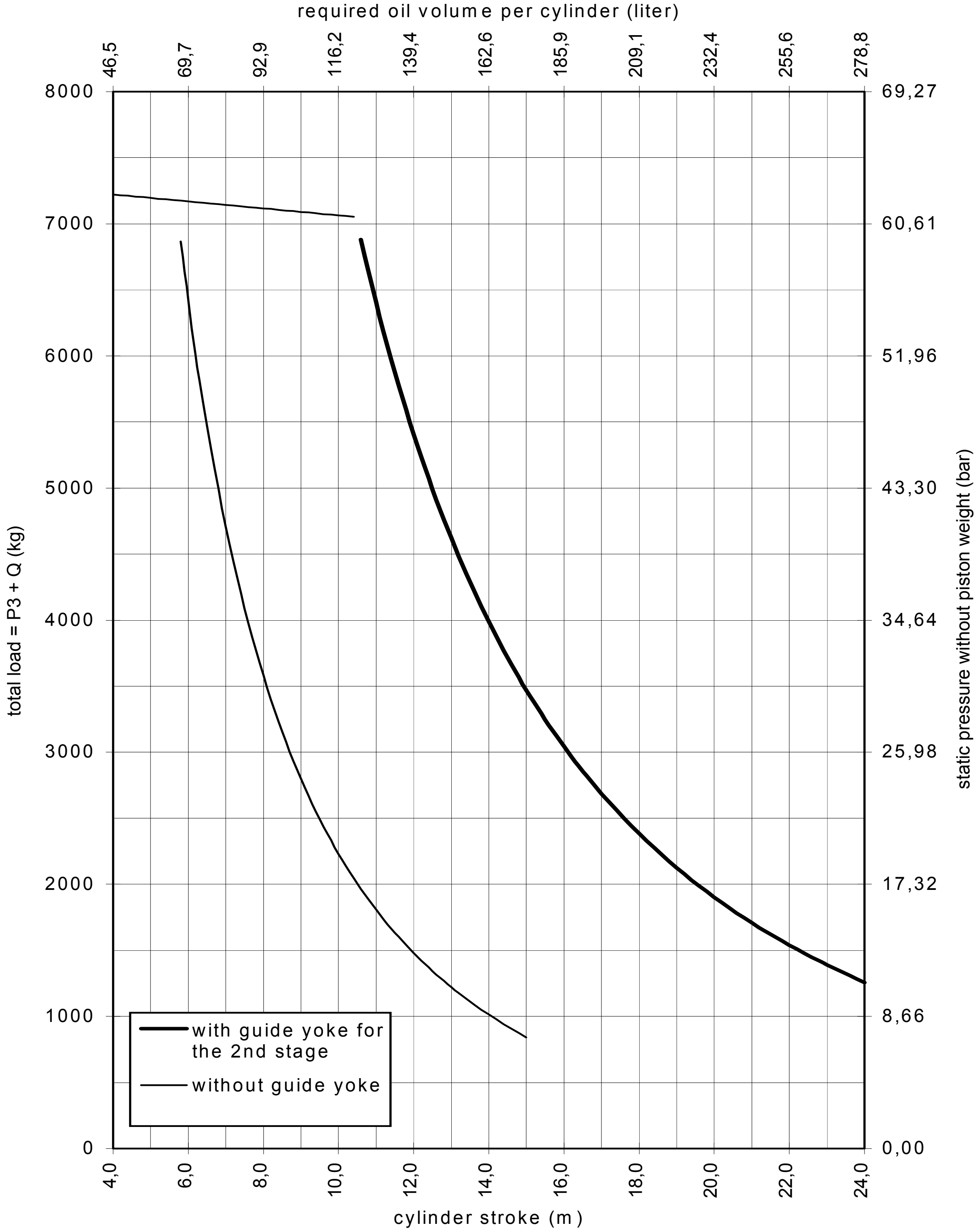
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 70 / 100 (mm)	Factor of excess pressure = 1,4
reference area	A = 59,589 (cm²)	Q = pay load (kg)
weight of piston	m_p = 40,184 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	23,659 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 85/2 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 85 / 120 (mm)	Factor of excess pressure = 1,4
reference area	A = 84,952 (cm²)	Q = pay load (kg)
weight of piston	m_p = 51,451 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	35,836 (kg) (per meter stroke)	z = number of cylinders

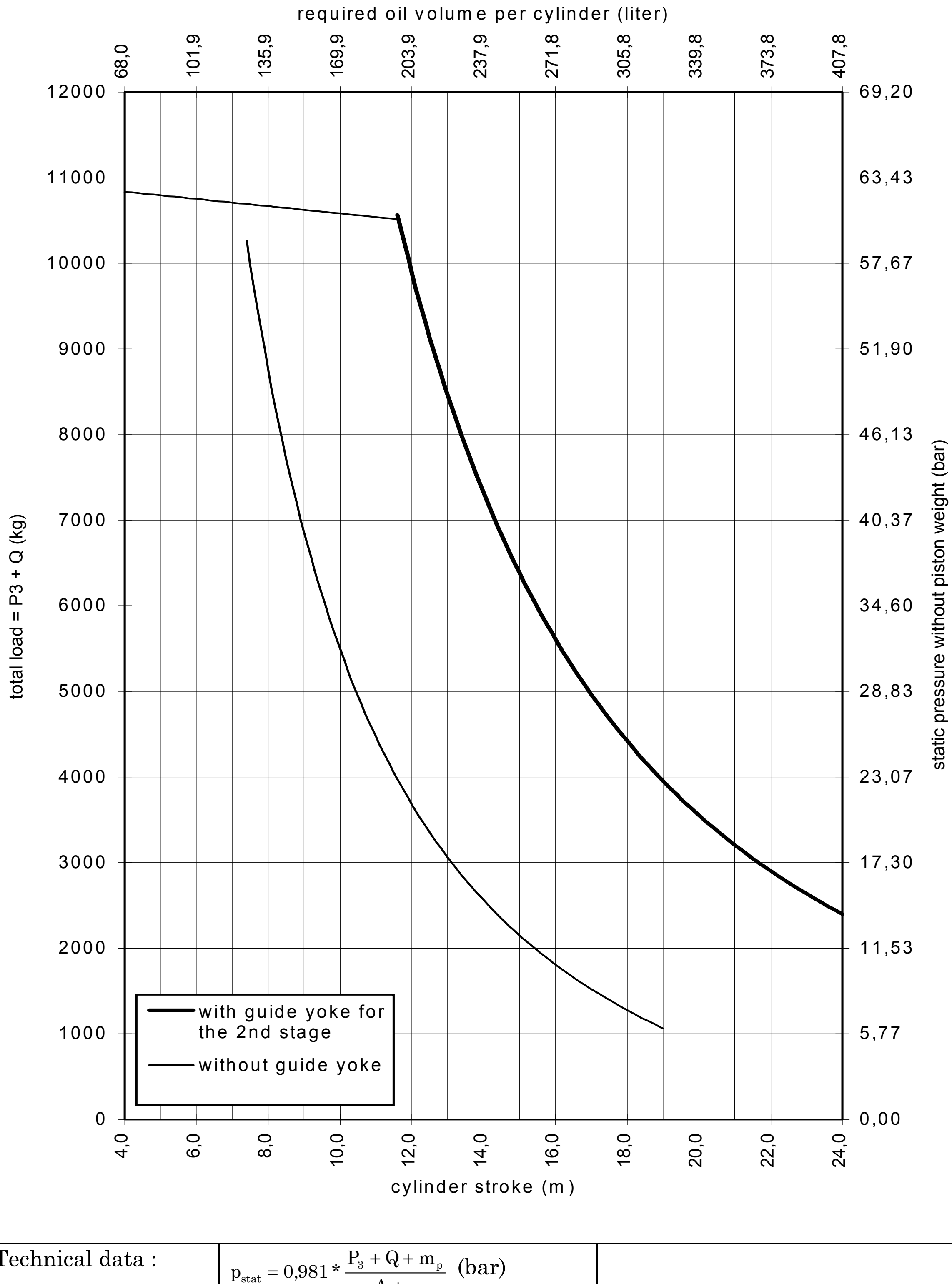
Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 100/2 - VE



Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 100 / 140 (mm)	Factor of excess pressure = 1,4
reference area	A = 116,269 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 70,812 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	27,128 (kg) (per meter stroke)	z = number of cylinders

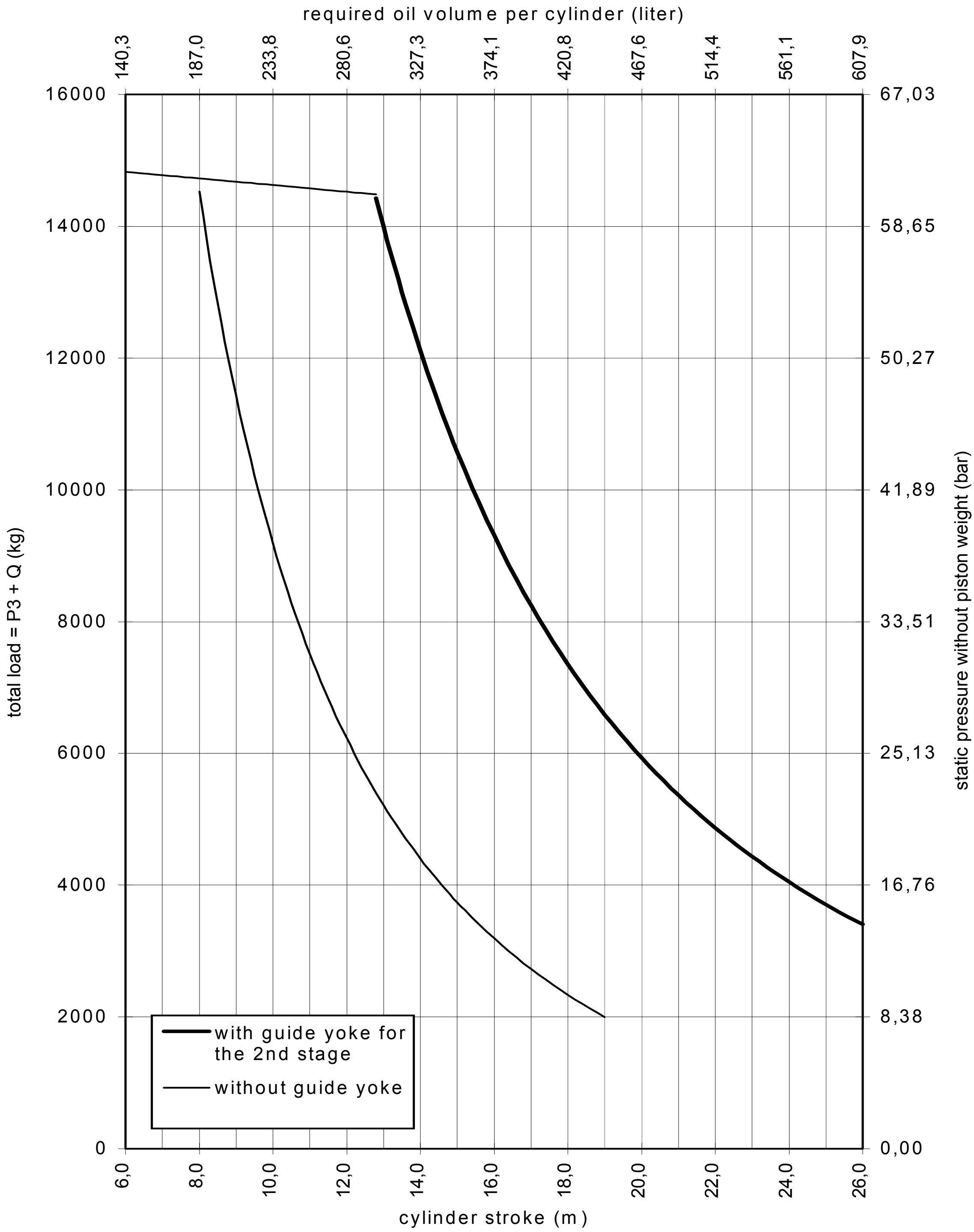
C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 2-stage cylinder - Central Direct System	emesso	S. A.	20/11/1998
		controllato		02/07/2002
		nullaosta		
Sost. il 2PX0270a	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 0 b	pag 7	
Sost. da			di 11	

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 120/2 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 120 / 170 (mm)	Factor of excess pressure = 1,4
reference area	A = 170,110 (cm²)	Q = pay load (kg)
weight of piston	m_p = 100,705 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	42,233 (kg) (per meter stroke)	z = number of cylinders

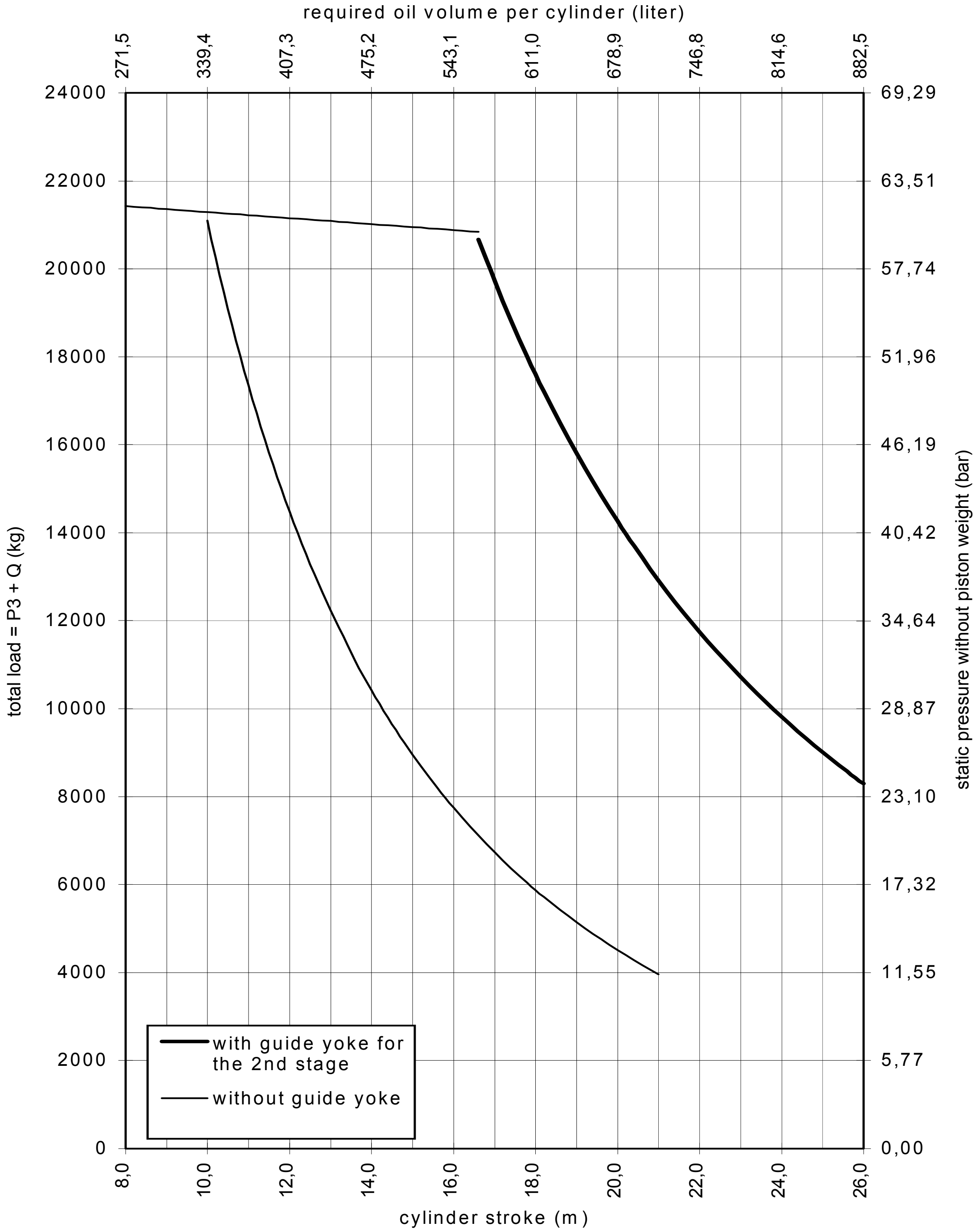
Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 140/2 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 140 / 200 (mm)	Factor of excess pressure = 1,4
reference area	A = 234,180 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 159,651 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	50,248 (kg) (per meter stroke)	z = number of cylinders

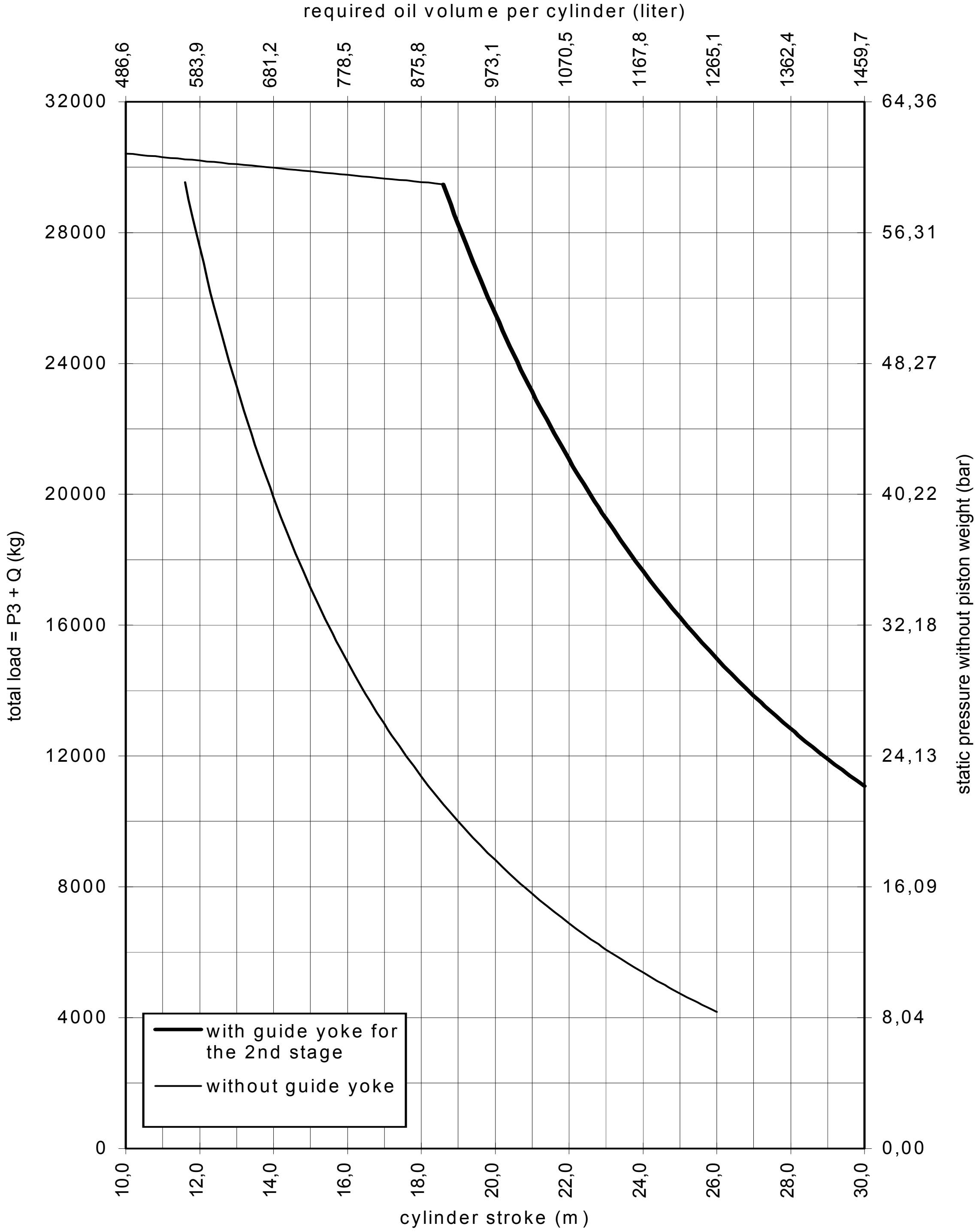
2PX0270b.doc Mod. N°0318 del 02-07-2002

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 170/2 - VE



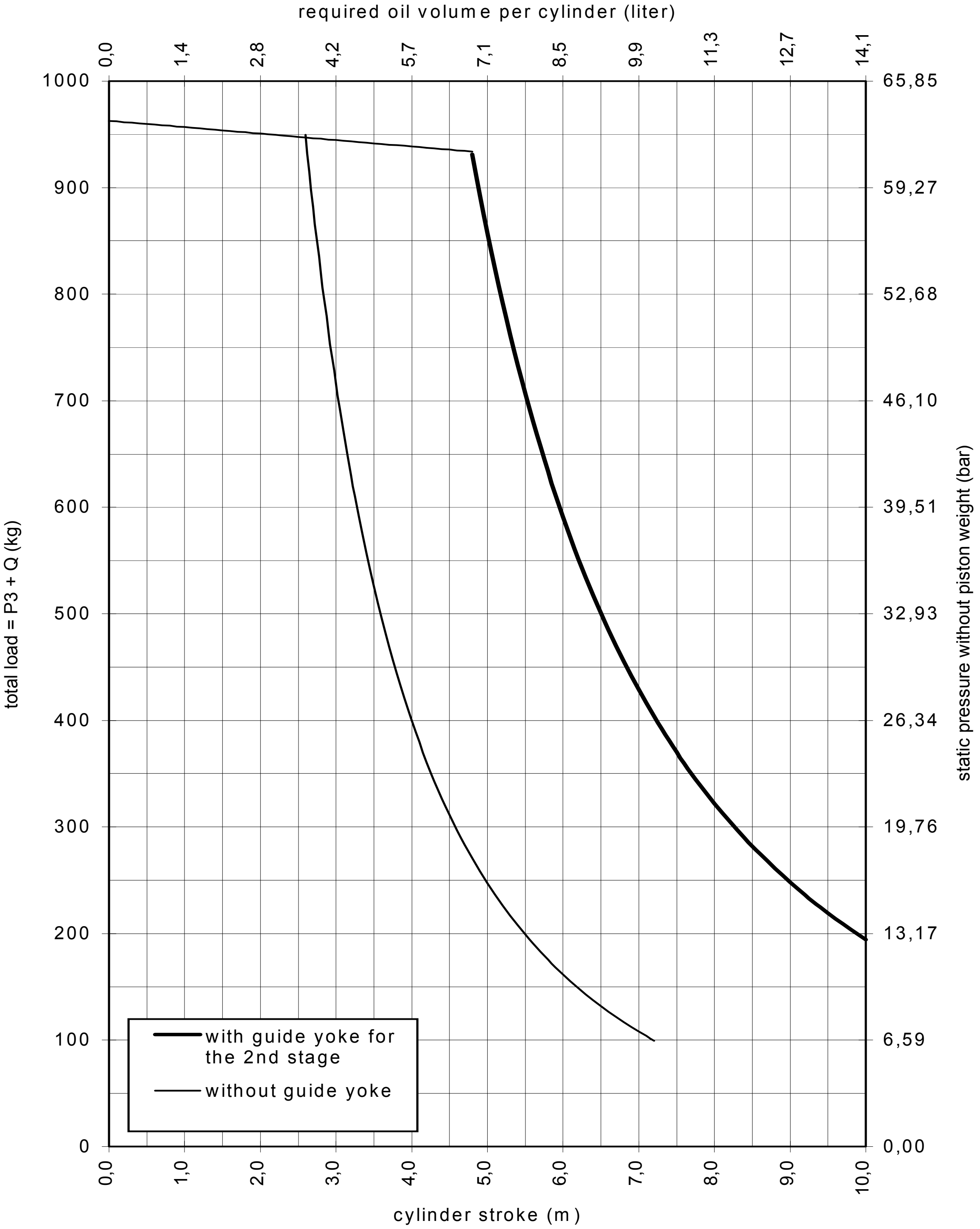
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 170 / 240 (mm)	Factor of excess pressure = 1,4
reference area	A = 339,810 (cm²)	Q = pay load (kg)
weight of piston	m_p = 217,208 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	67,844 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 200/2 - VE



Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 200 / 290 (mm)	Factor of excess pressure = 1,4
reference area	A = 487,765 (cm²)	Q = pay load (kg)
weight of piston	m_p = 332,140 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	108,890 (kg) (per meter stroke)	z = number of cylinders

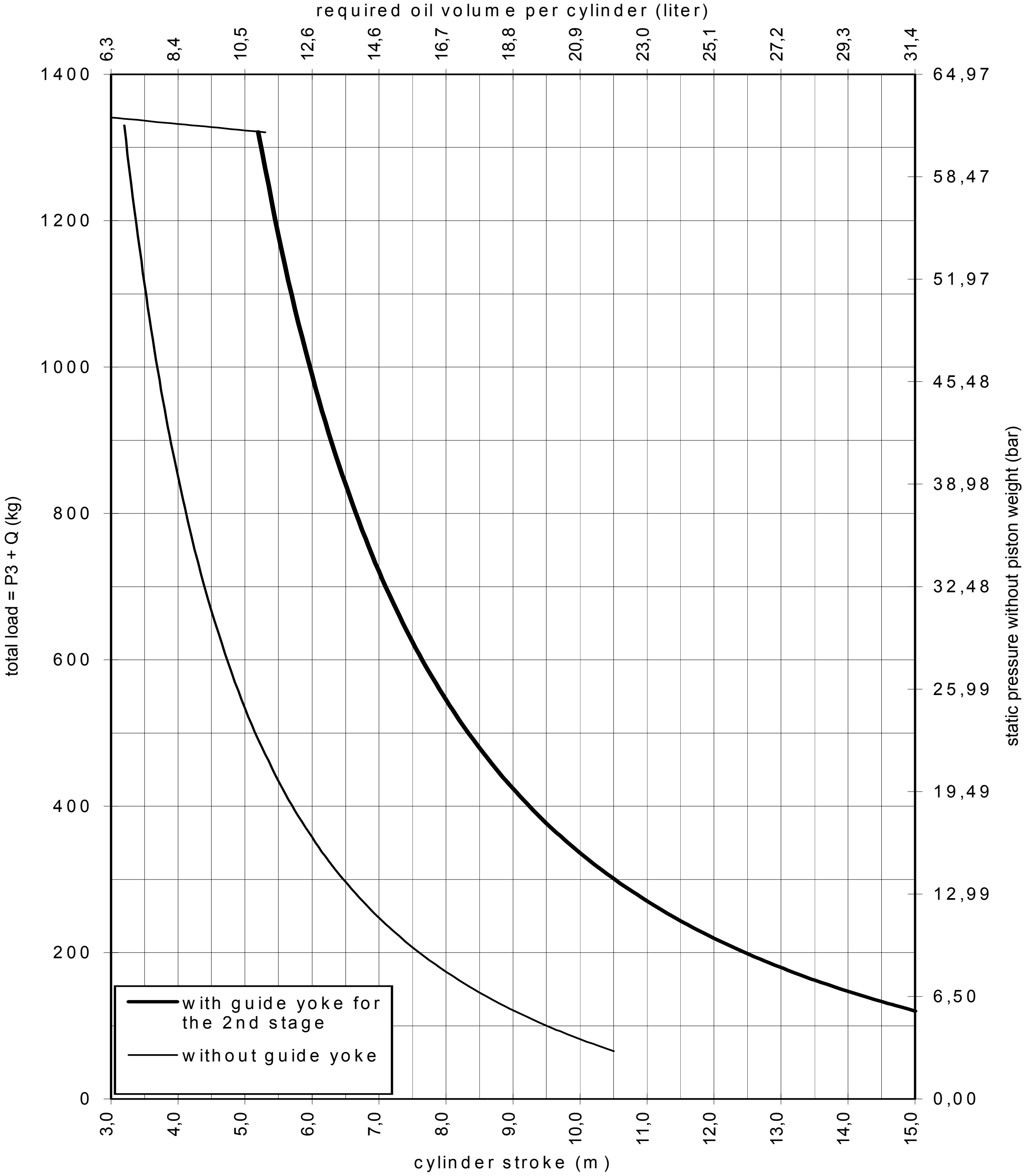
Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 35/2 - RS



Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 35 / 50 (mm)	Factor of excess pressure = 1,4
reference area	A = 14,897 (cm²)	Q = pay load (kg)
weight of piston	m_p = 9,175 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	6,045 (kg) (per meter stroke)	z = number of cylinders

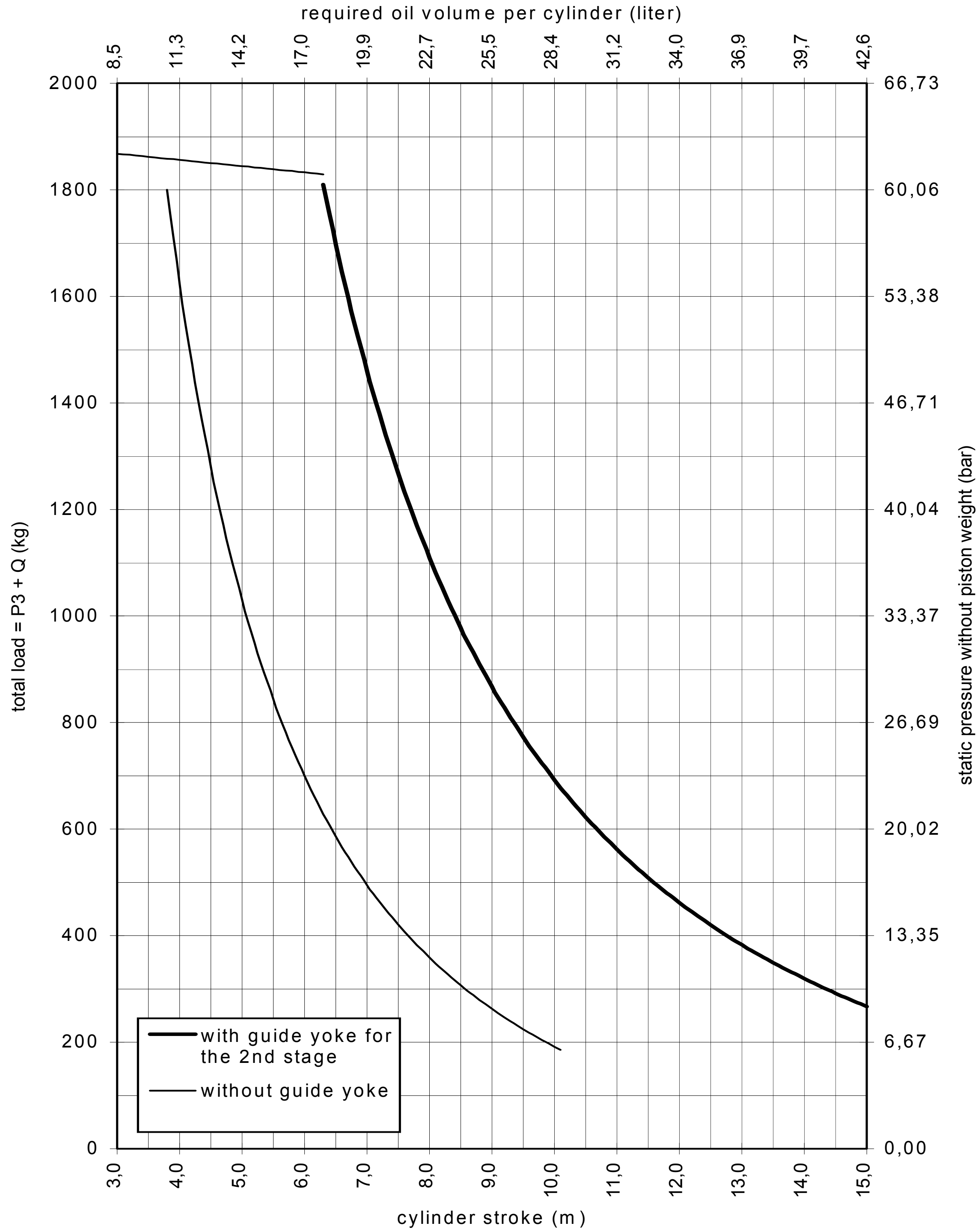
2PX0271b.doc Mod. N°0318 del 02-07-2002

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 42/2 - RS



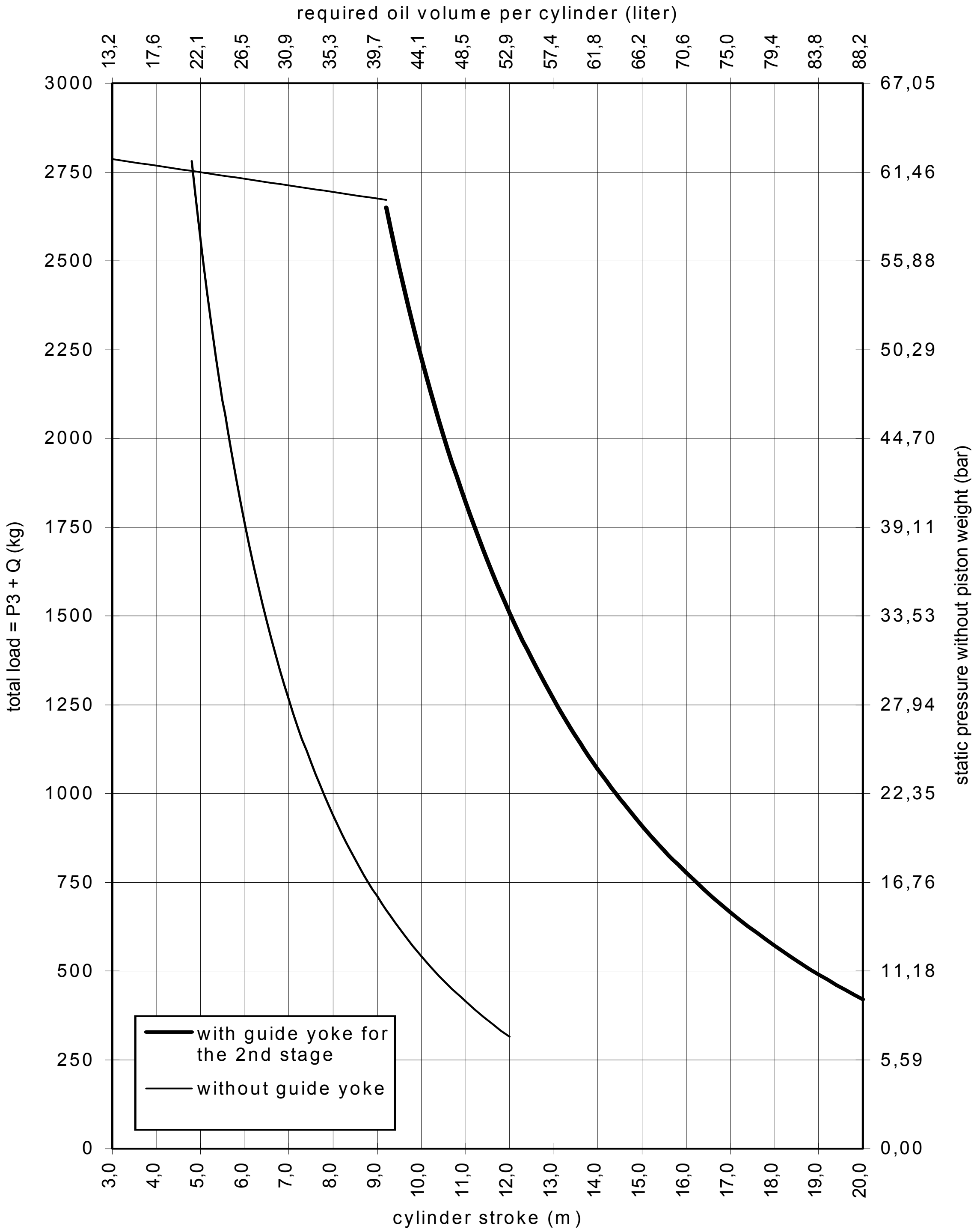
Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 42 / 60 (mm)	Factor of excess pressure = 1,4
reference area	A = 21,138 (cm²)	Q = pay load (kg)
weight of piston	m_p = 11,7 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	8,8 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 50/2 - RS



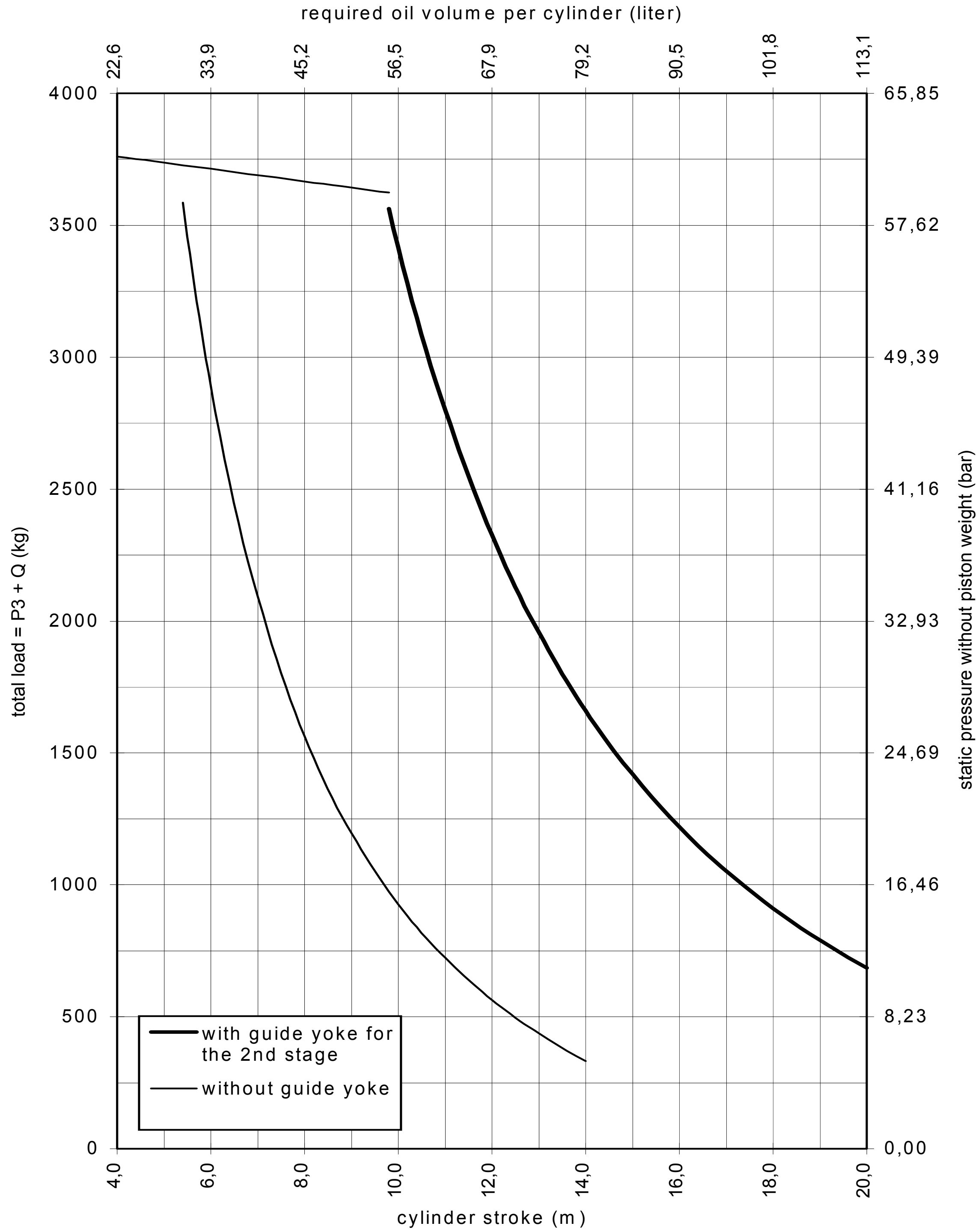
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 50 / 70 (mm)	Factor of excess pressure = 1,4
reference area	A = 29,402 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 15,188 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	11,714 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 63/2 - RS



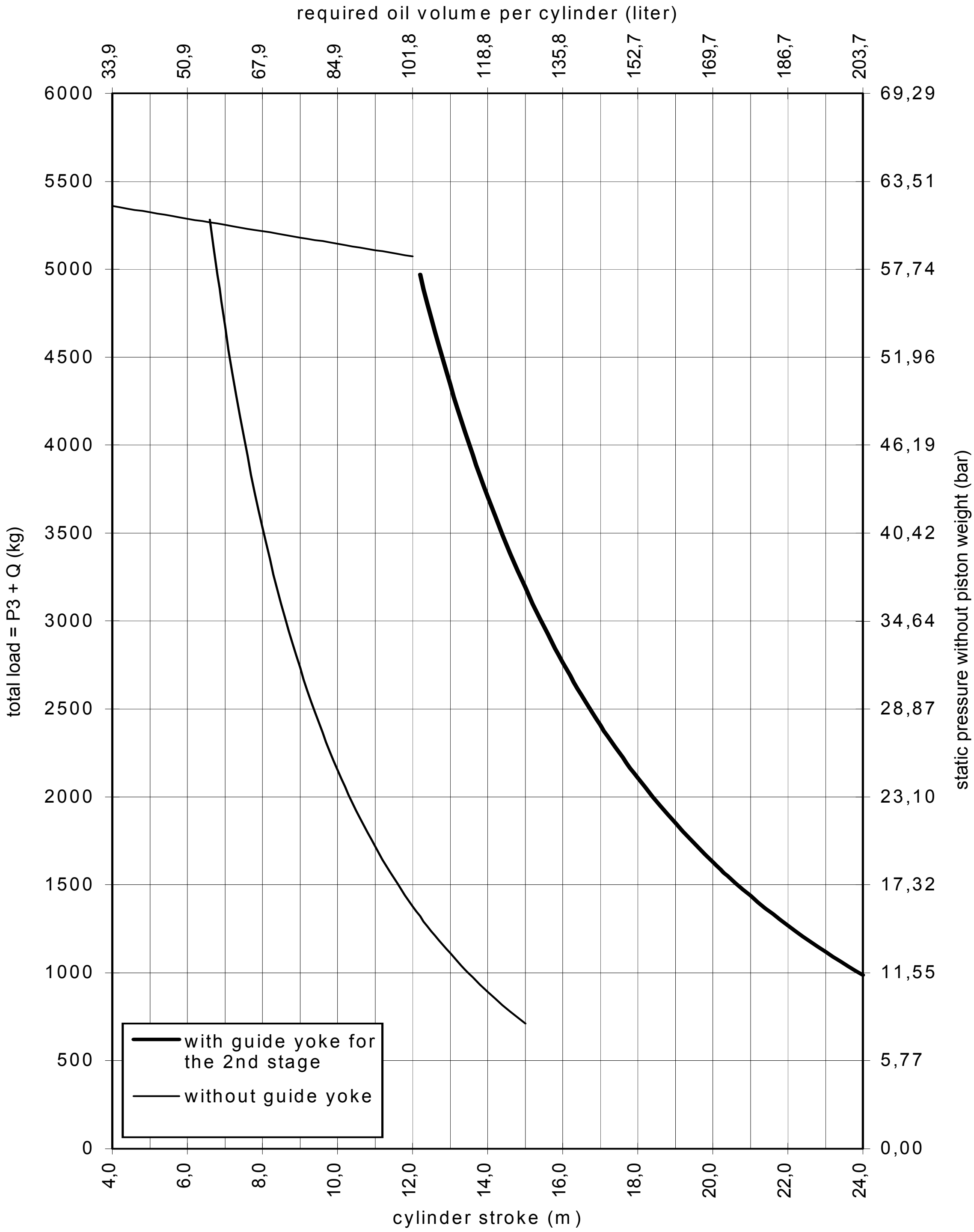
Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 63 / 85 (mm)	Factor of excess pressure = 1,4
reference area	A = 43,891 (cm²)	Q = pay load (kg)
weight of piston	m_p = 20,897 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	18,527 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 70/2 - RS



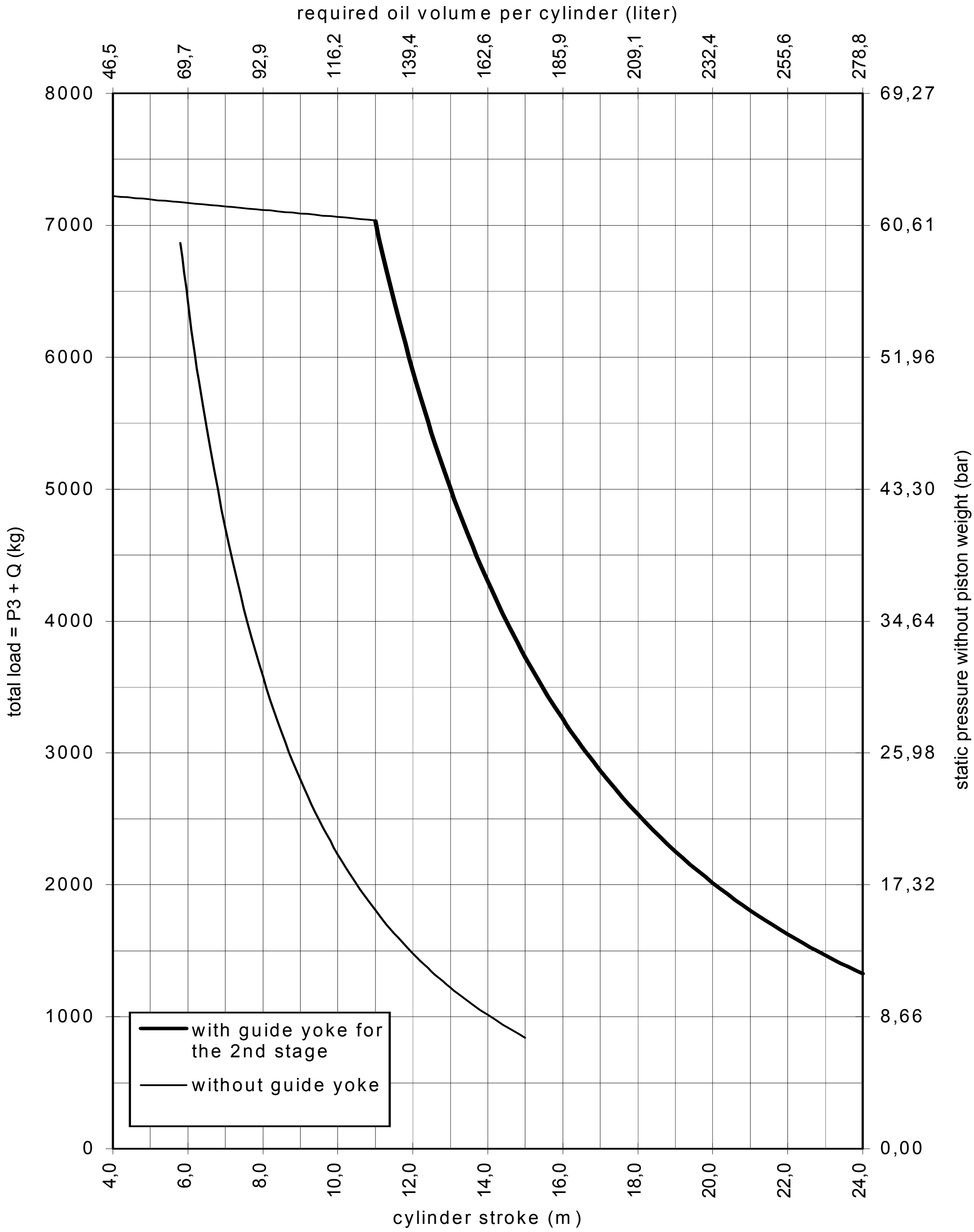
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 70 / 100 (mm)	Factor of excess pressure = 1,4
reference area	A = 59,589 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 31,906 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	23,659 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 85/2 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 85 / 120 (mm)	Factor of excess pressure = 1,4
reference area	A = 84,952 (cm²)	Q = pay load (kg)
weight of piston	m_p = 39,246 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	35,836 (kg) (per meter stroke)	z = number of cylinders

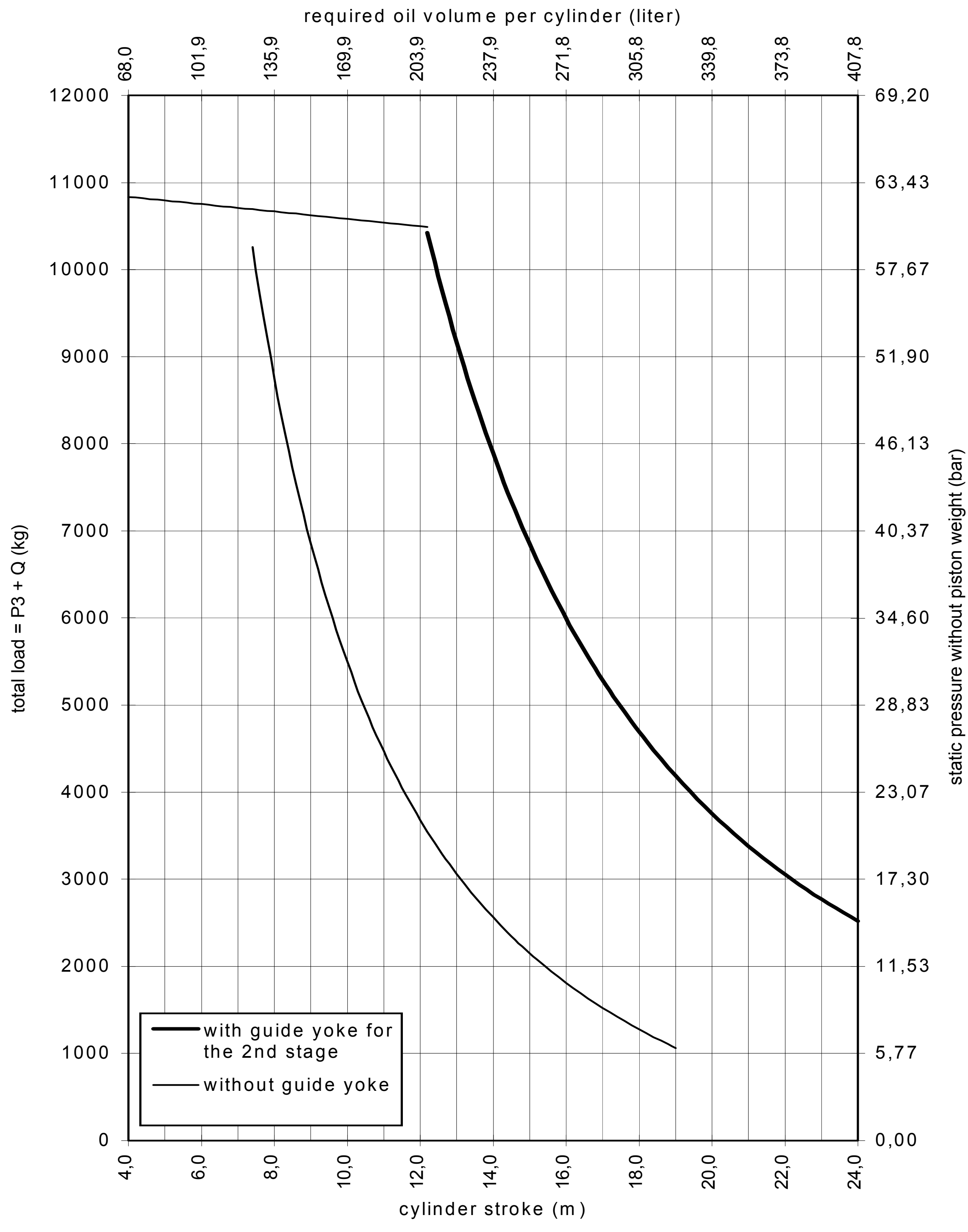
Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 100/2 - RS



Selection diagram for Telescopic 2-stage Cylinder

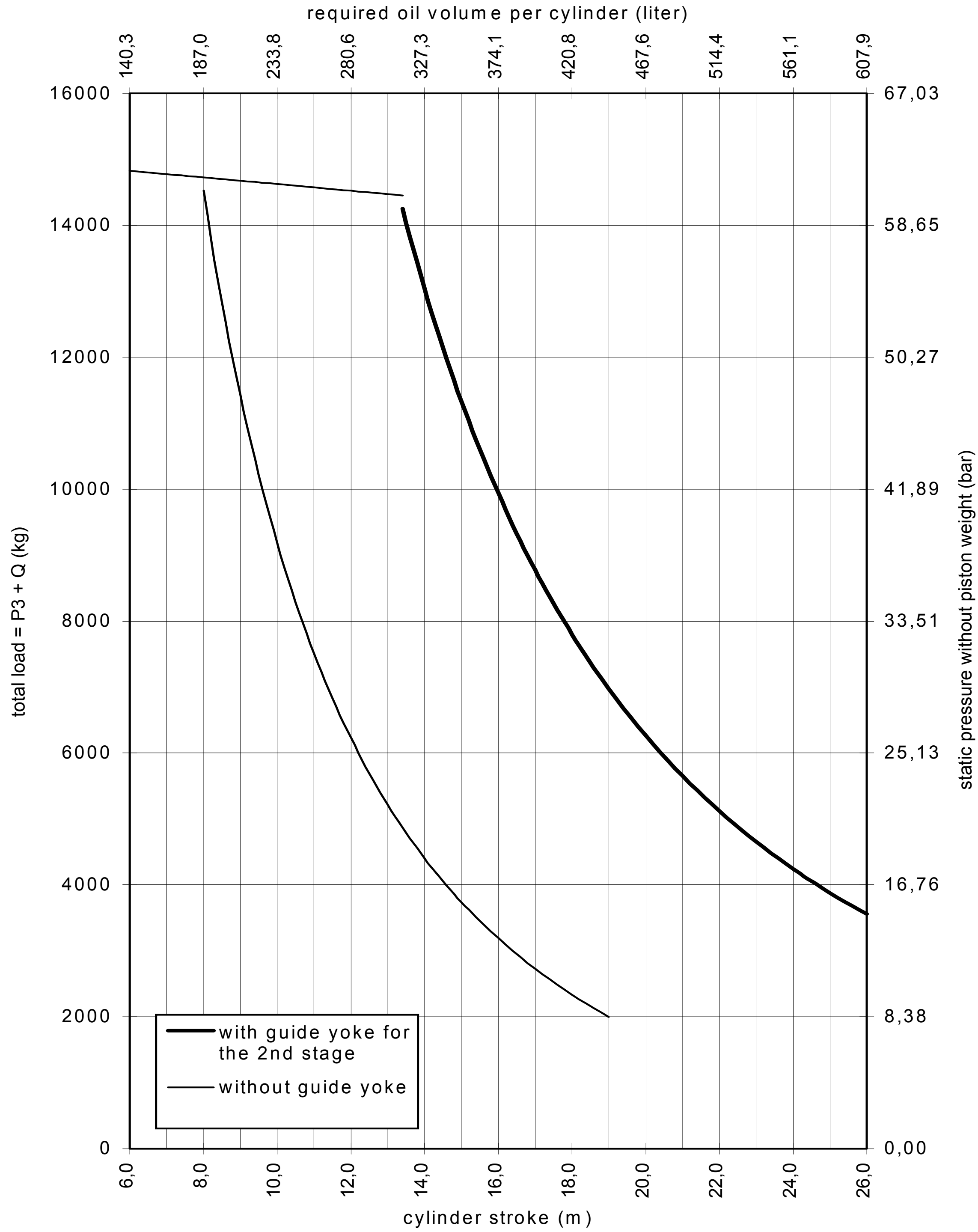
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 100 / 140 (mm)	Factor of excess pressure = 1,4
reference area	A = 116,269 (cm²)	Q = pay load (kg)
weight of piston	m_p = 64,730 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	27,128 (kg) (per meter stroke)	z = number of cylinders

Acc. to EN 81/2 - Side Ram System
Type 3PL 120/2 - RS



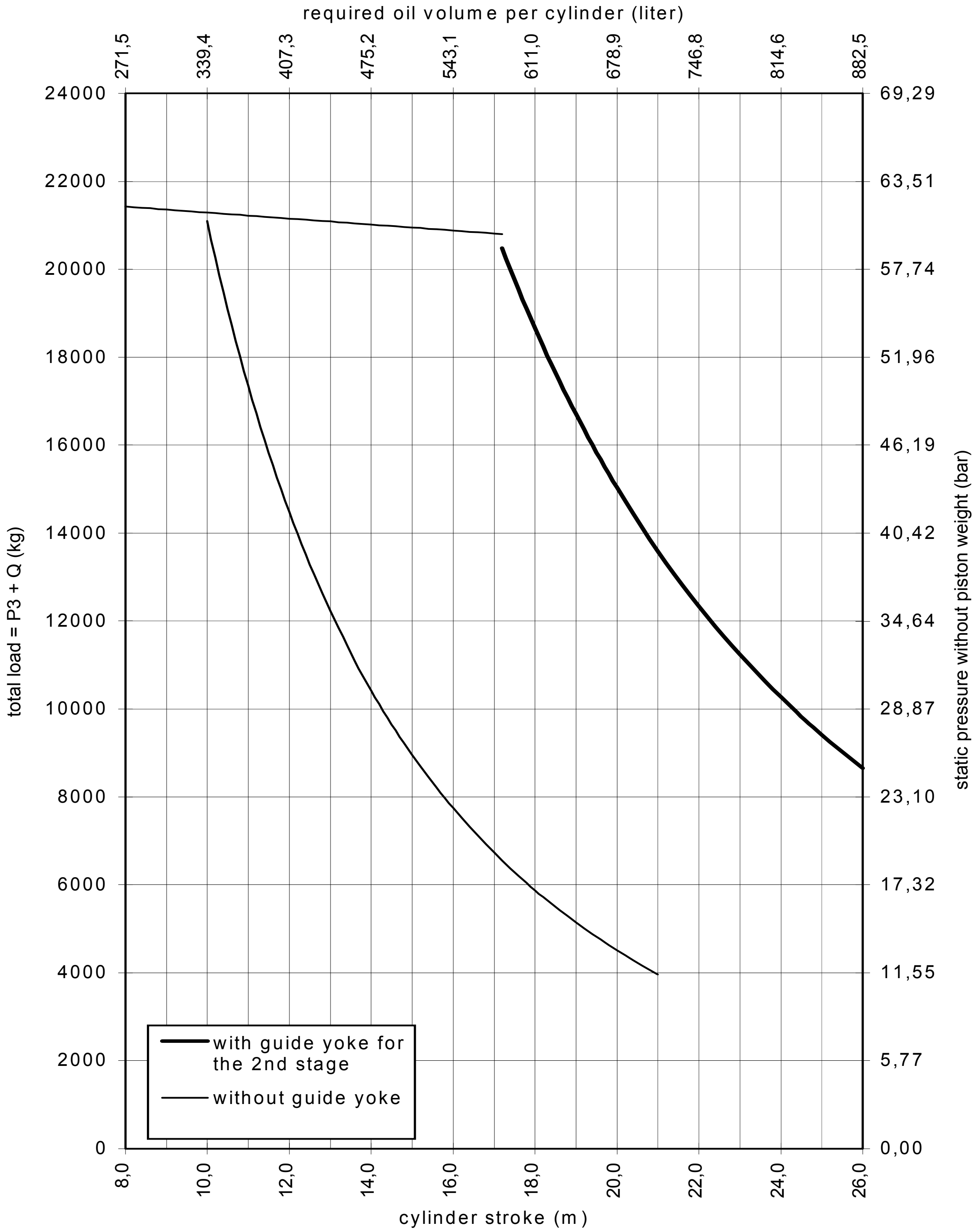
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 140 / 200 (mm)	Factor of excess pressure = 1,4
reference area	A = 234,180 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 150,867 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	50,248 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 140/2 - RS



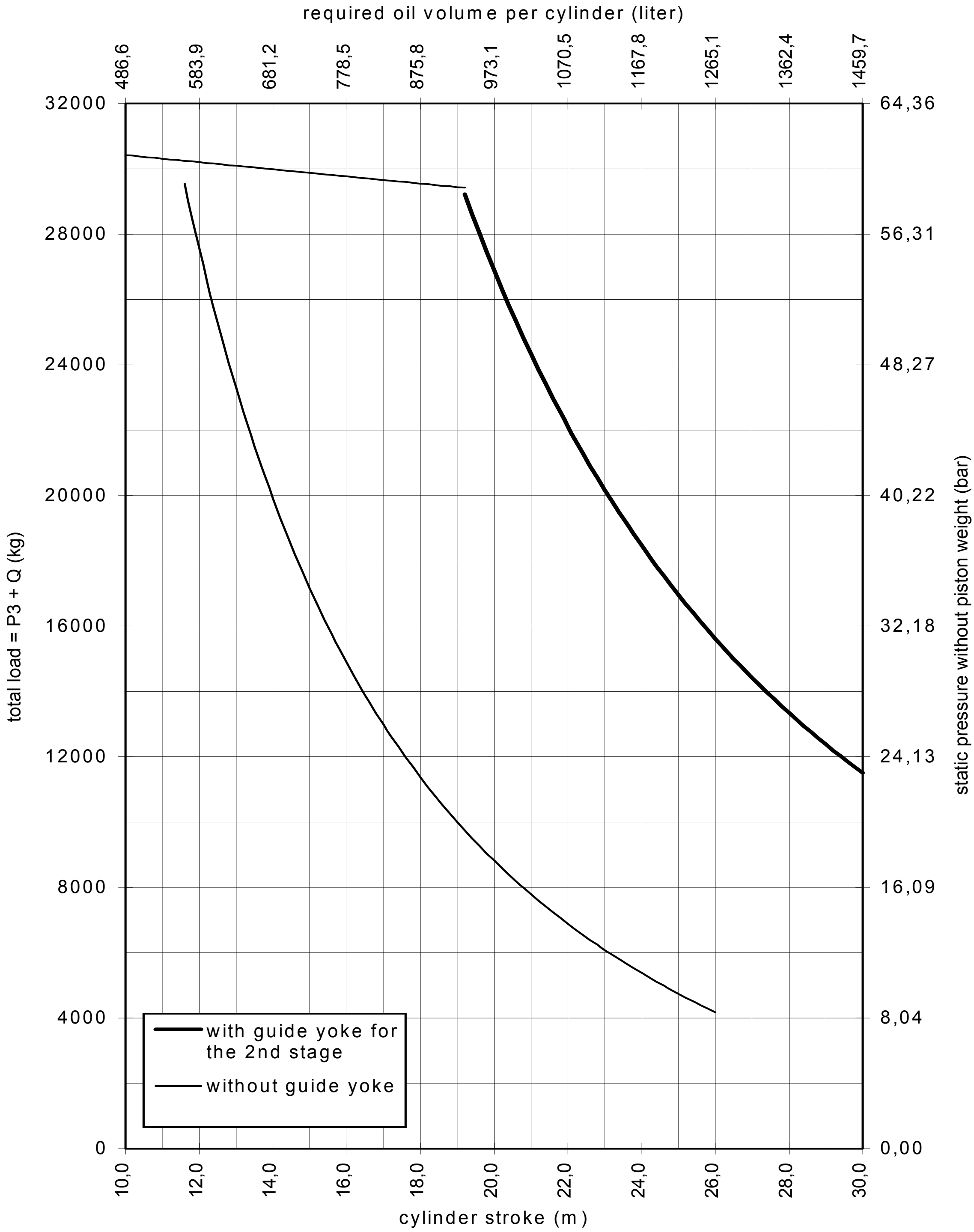
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 140 / 200 (mm)	Factor of excess pressure = 1,4
reference area	A = 234,180 (cm²)	Q = pay load (kg)
weight of piston	m_p = 150,867 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	50,248 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 170/2 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 170 / 240 (mm)	Factor of excess pressure = 1,4
reference area	A = 339,810 (cm²)	Q = pay load (kg)
weight of piston	m_p = 202,835 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	67,844 (kg) (per meter stroke)	z = number of cylinders

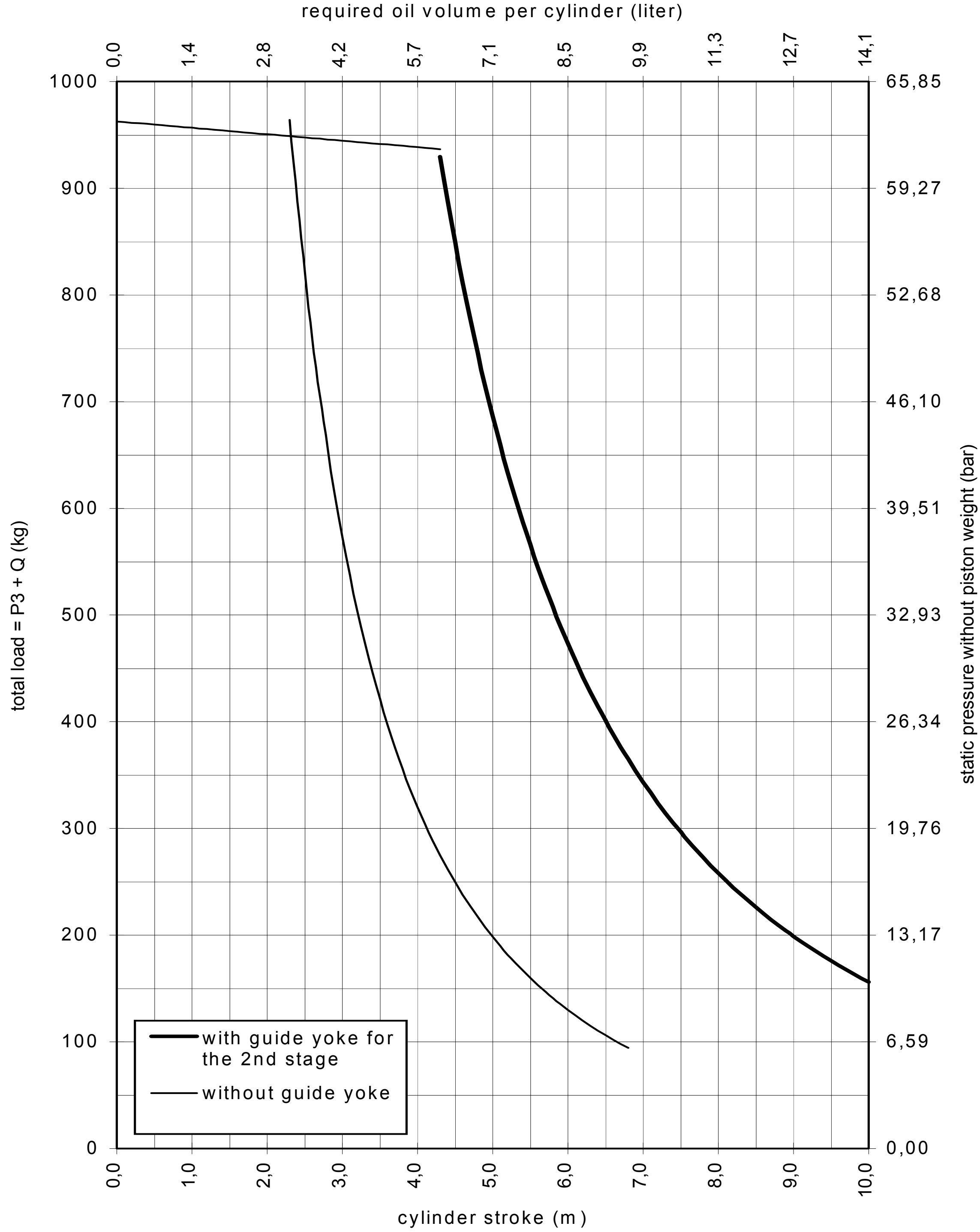
Selection diagram for Telescopic 2-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 200/2 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 200 / 290 (mm)	Factor of excess pressure = 1,4
reference area	A = 487,765 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 313,965 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	108,890 (kg) (per meter stroke)	z = number of cylinders

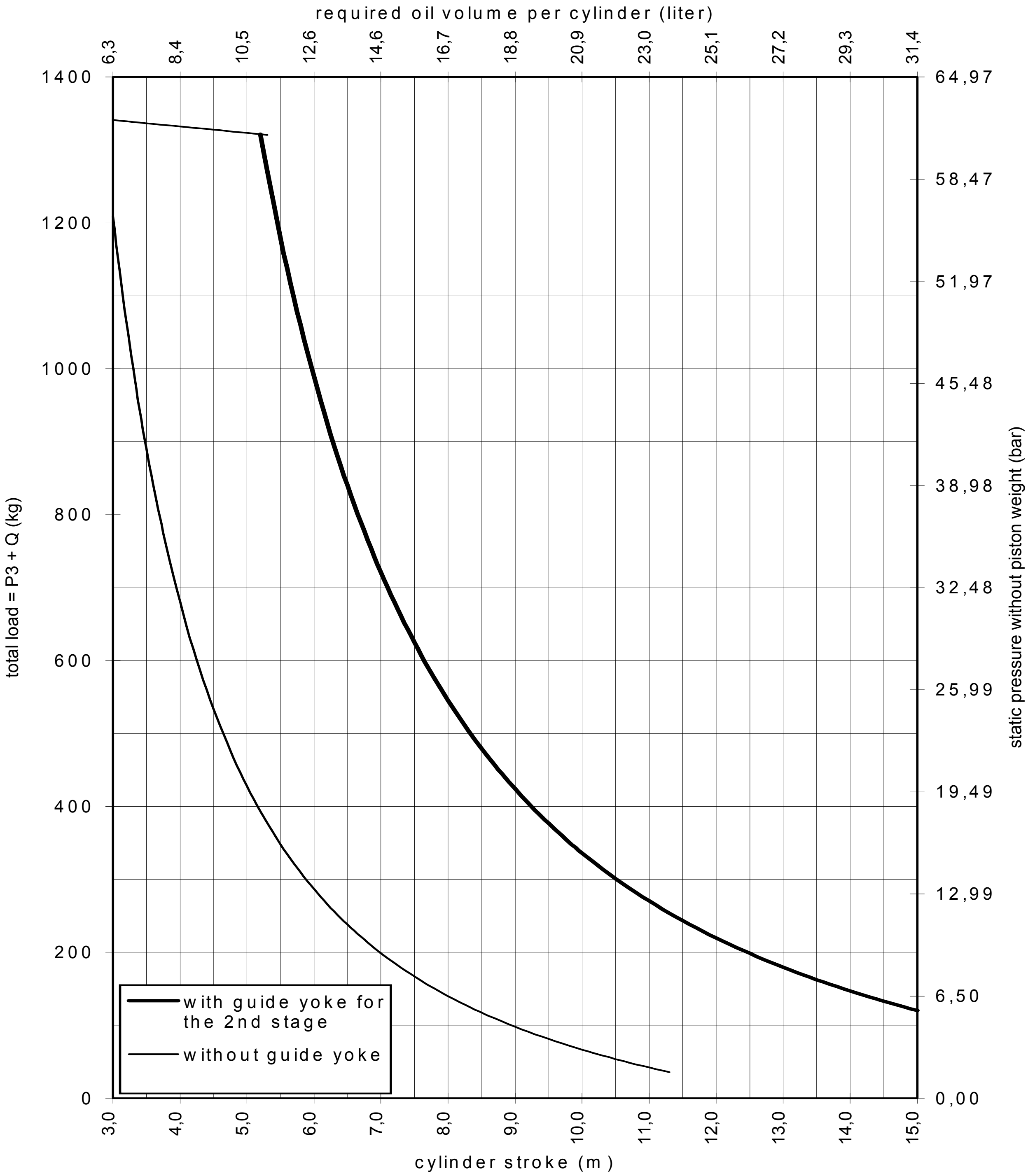
C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 2-stage cylinder - Side Ram System	emesso	S. A.	20/11/1998
		controllato		02/07/2002
		nullaosta		
Sost. il 2 PX 0271a / Sost. da	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 1 b	pag 11	di 11

Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 35/2 - VT



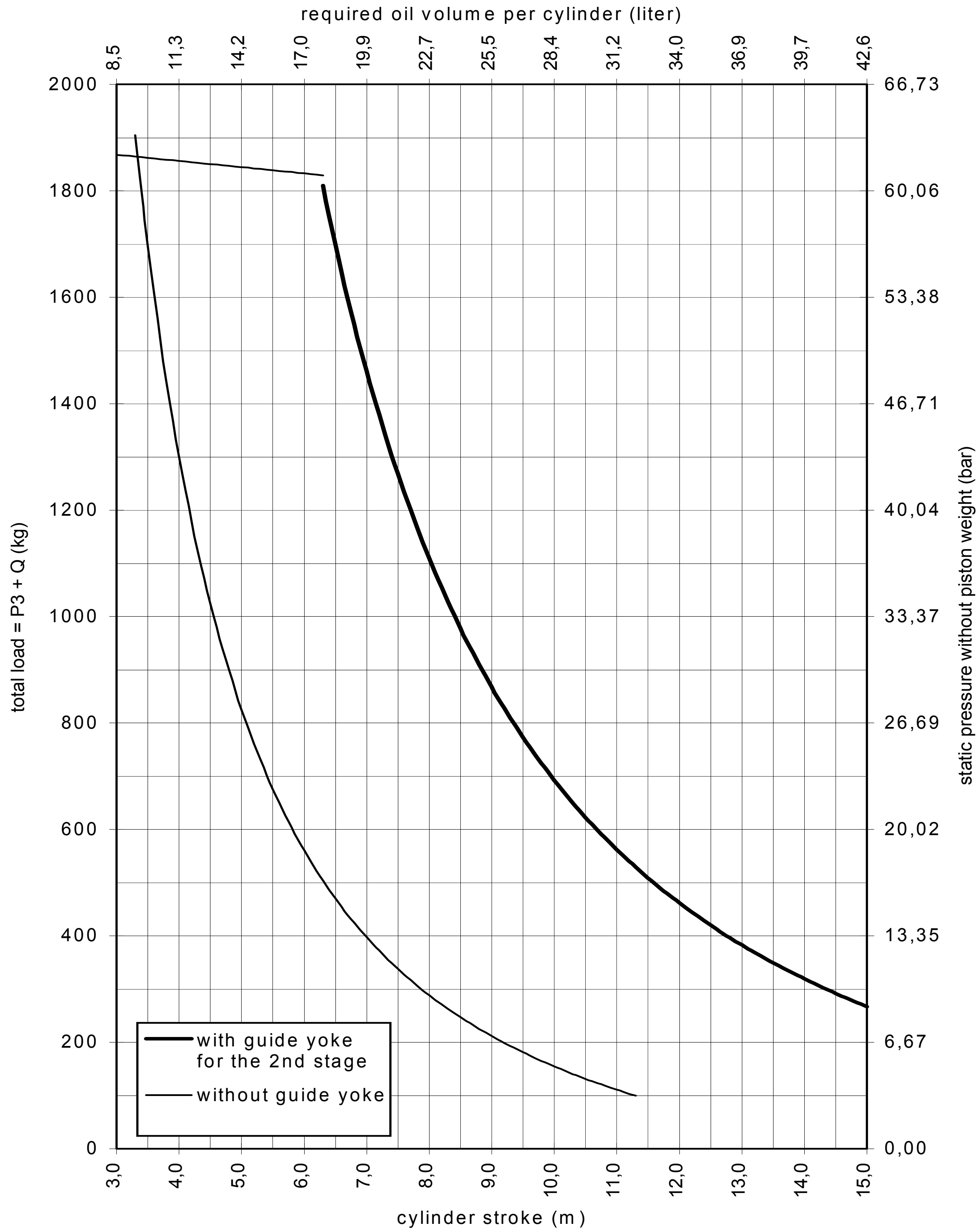
Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 35 / 50 (mm)	Factor of excess pressure = 1,4
reference area	A = 14,897 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 9,175 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	6,045 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 42/2 - VT



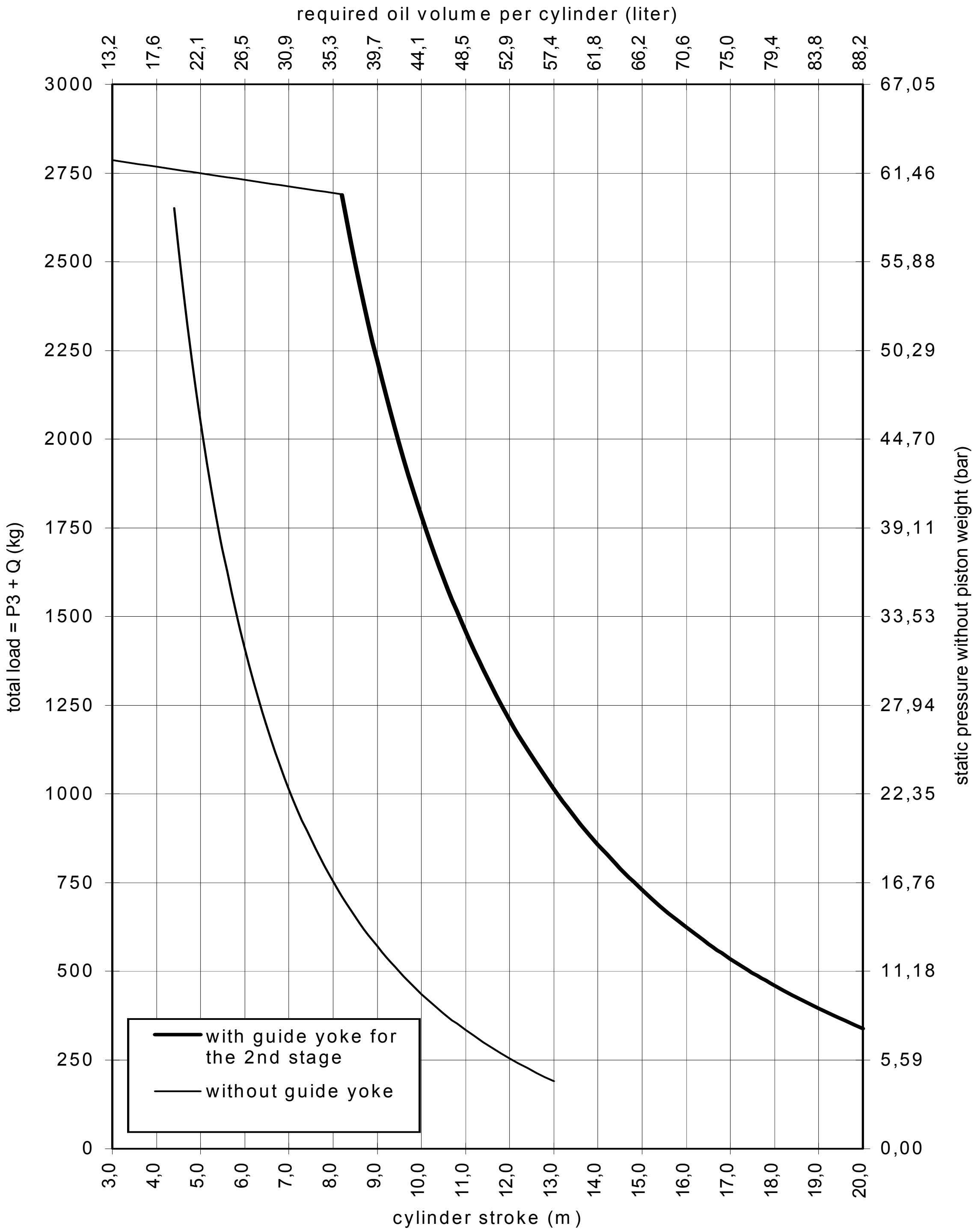
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 42 / 60 (mm)	Factor of excess pressure = 1,4
reference area	A = 21,138 (cm²)	Q = pay load (kg)
weight of piston	m_p = 11,7 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	8,8 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 50/2 - VT



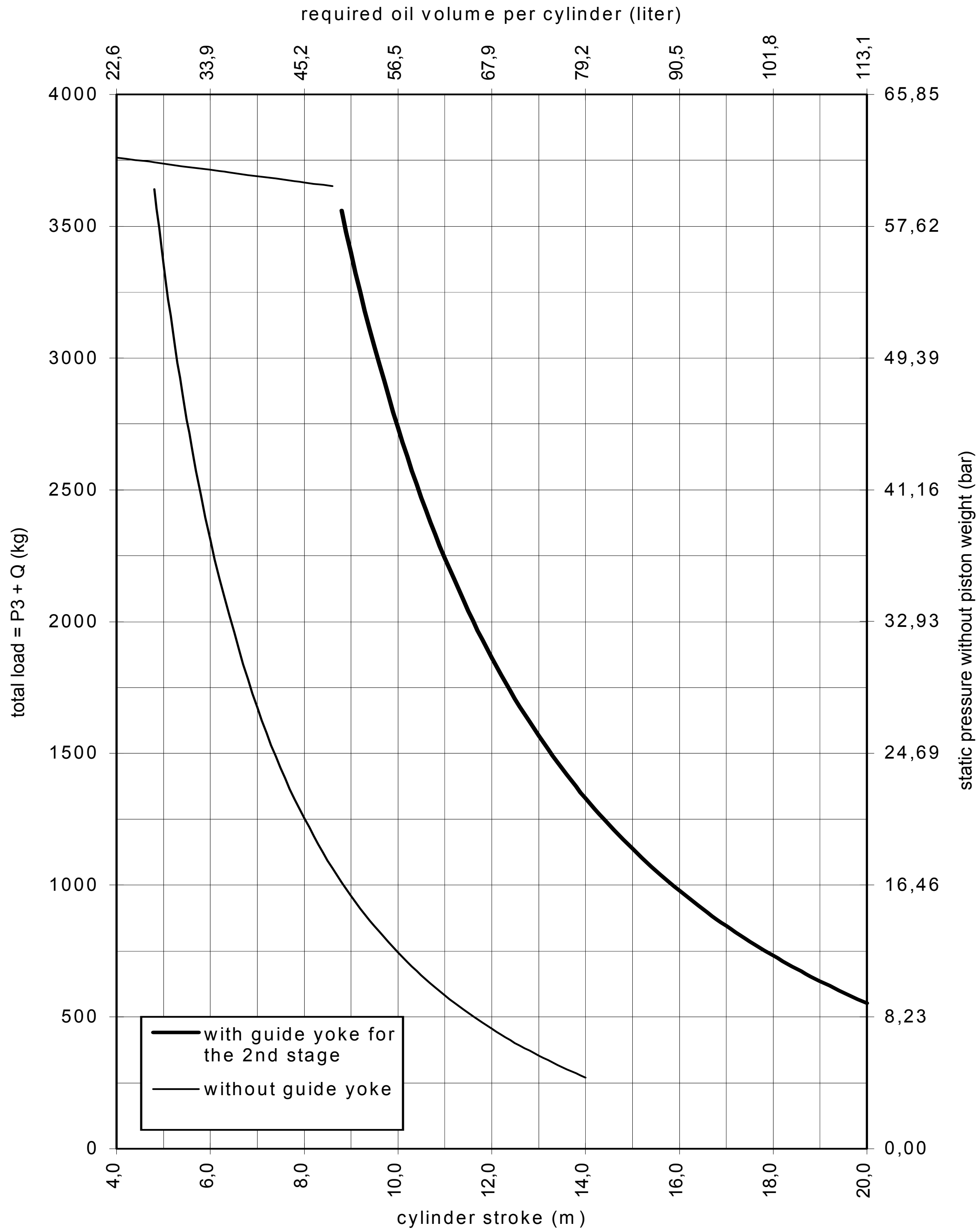
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 50 / 70 (mm)	Factor of excess pressure = 1,4
reference area	A = 29,402 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 15,188 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	11,714 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 63/2 - VT



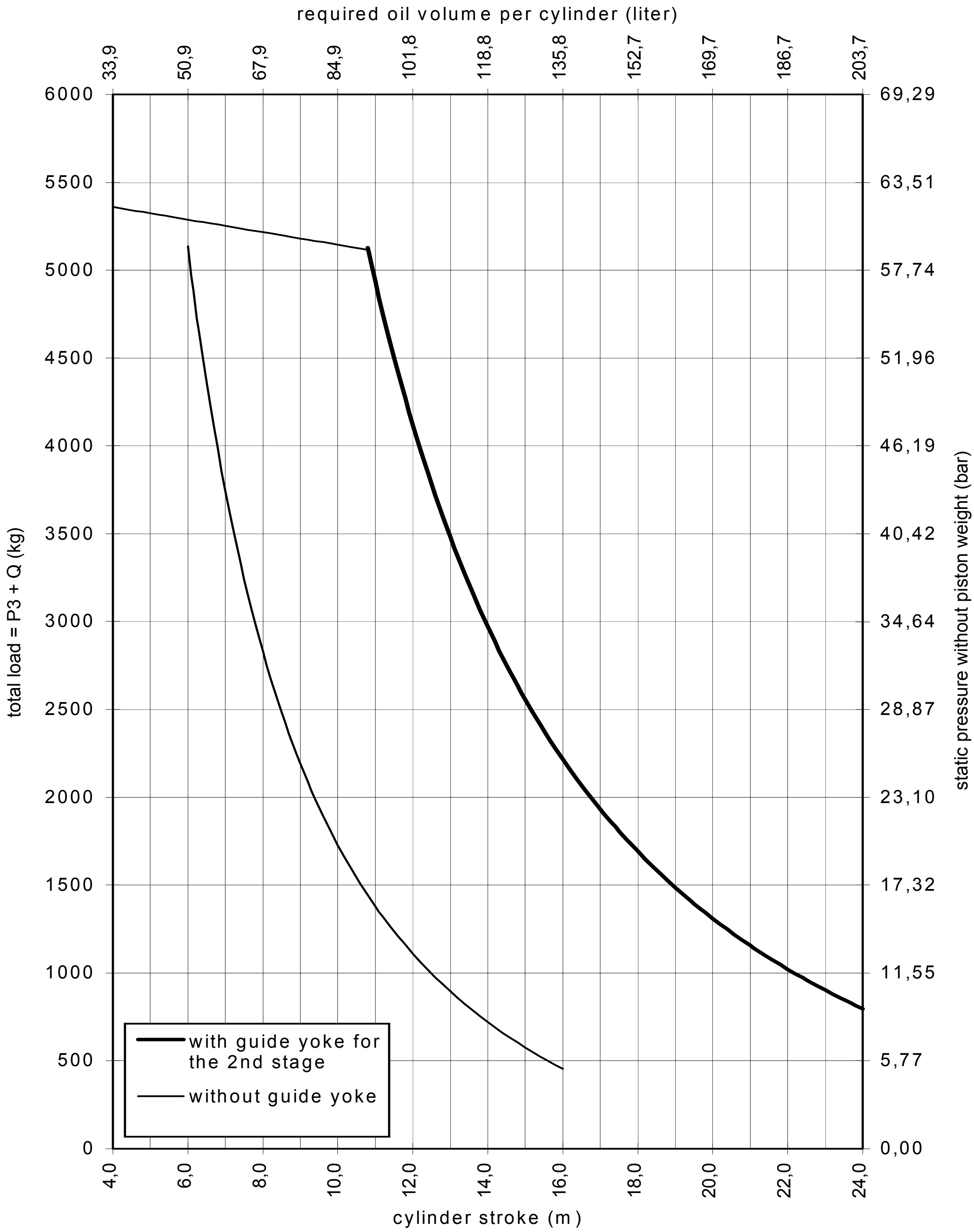
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 63 / 85 (mm)	Factor of excess pressure = 1,4
reference area	A = 43,891 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 20,897 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	18,527 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 70/2 - VT



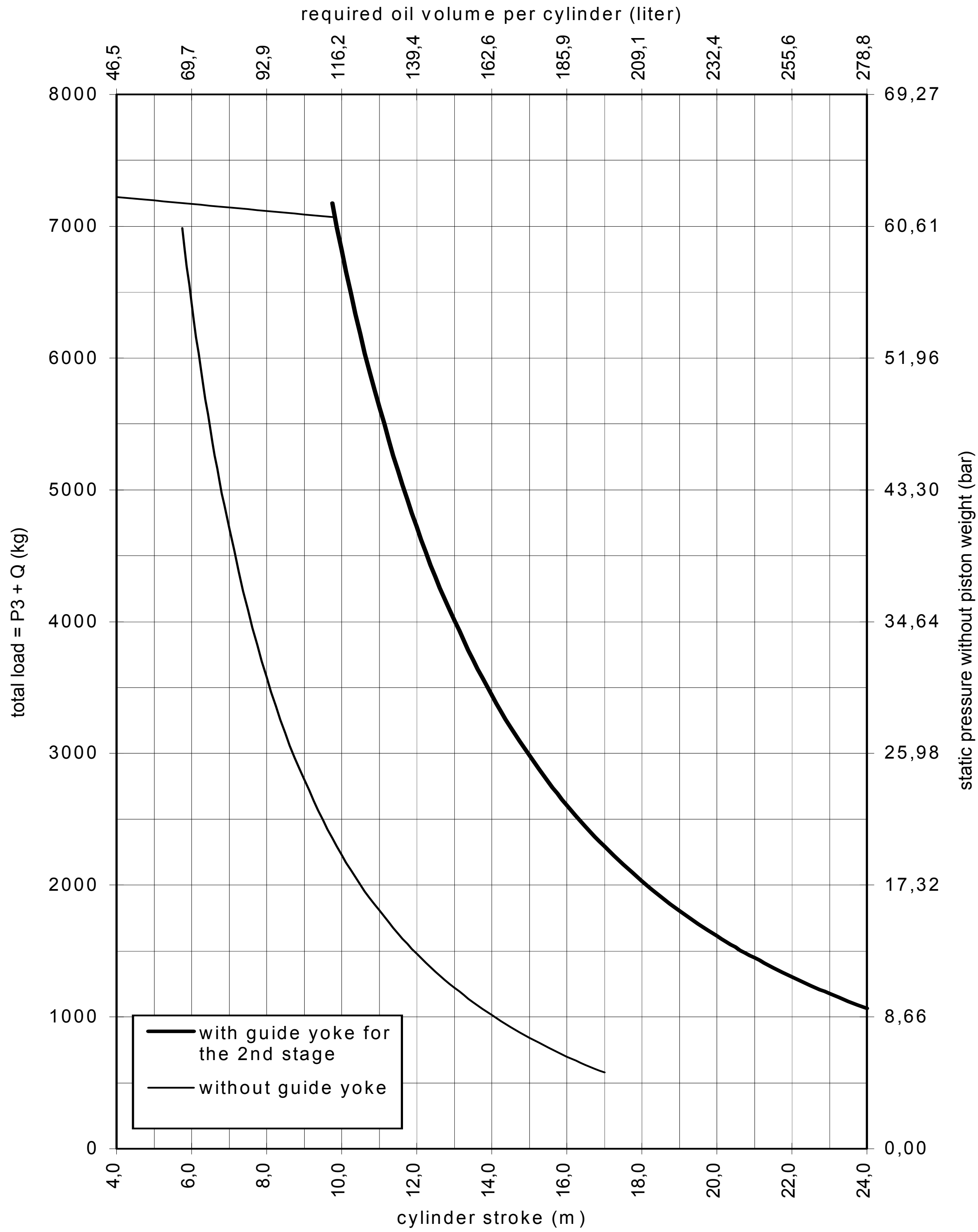
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 70 / 100 (mm)	Factor of excess pressure = 1,4
reference area	A = 59,589 (cm²)	Q = pay load (kg)
weight of piston	m_p = 31,906 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	23,659 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 85/2 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 85 / 120 (mm)	Factor of excess pressure = 1,4
reference area	A = 84,952 (cm²)	Q = pay load (kg)
weight of piston	m_p = 39,246 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	35,836 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 100/2 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 100 / 140 (mm)	Factor of excess pressure = 1,4
reference area	A = 116,269 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 64,730 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	27,128 (kg) (per meter stroke)	z = number of cylinders

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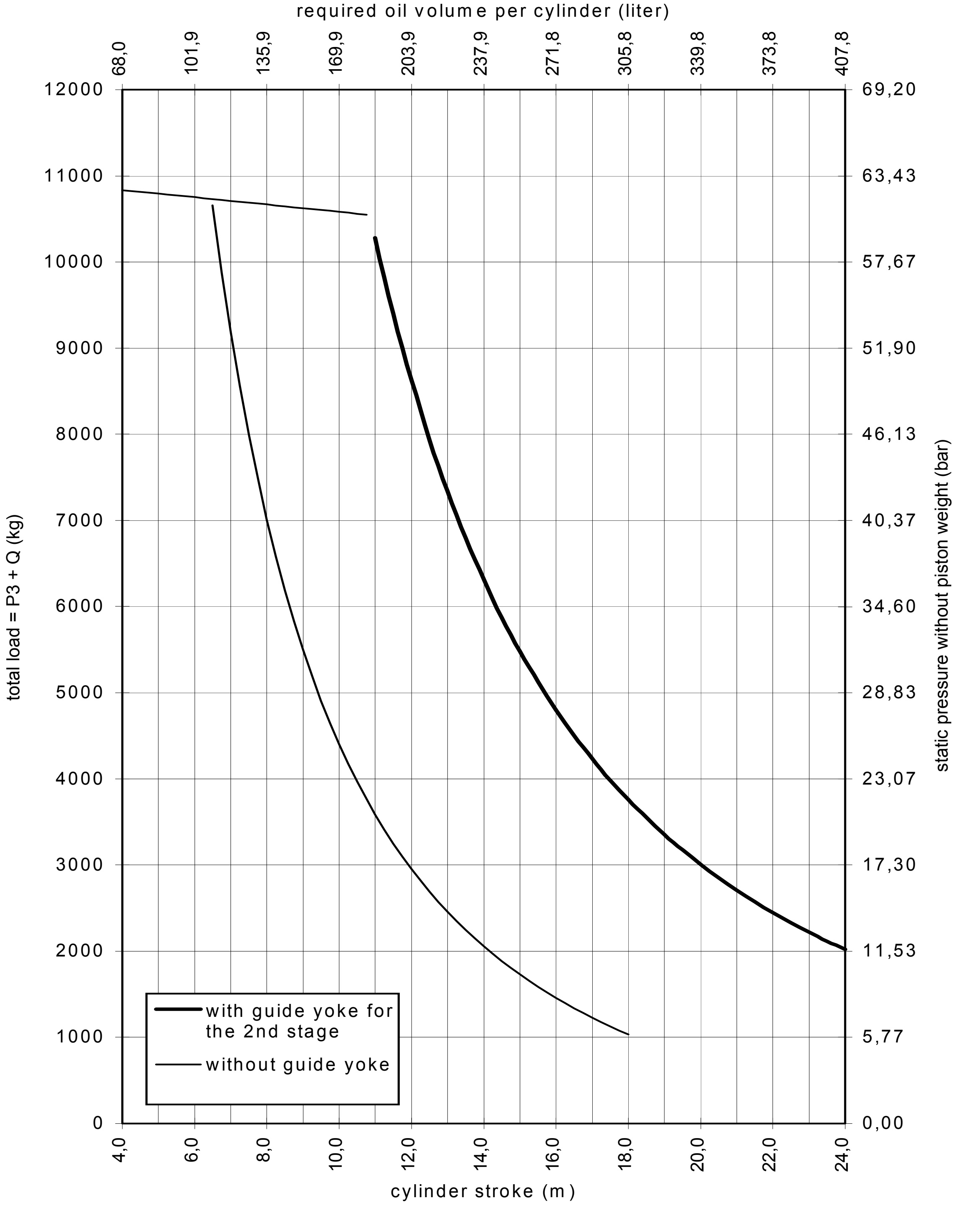
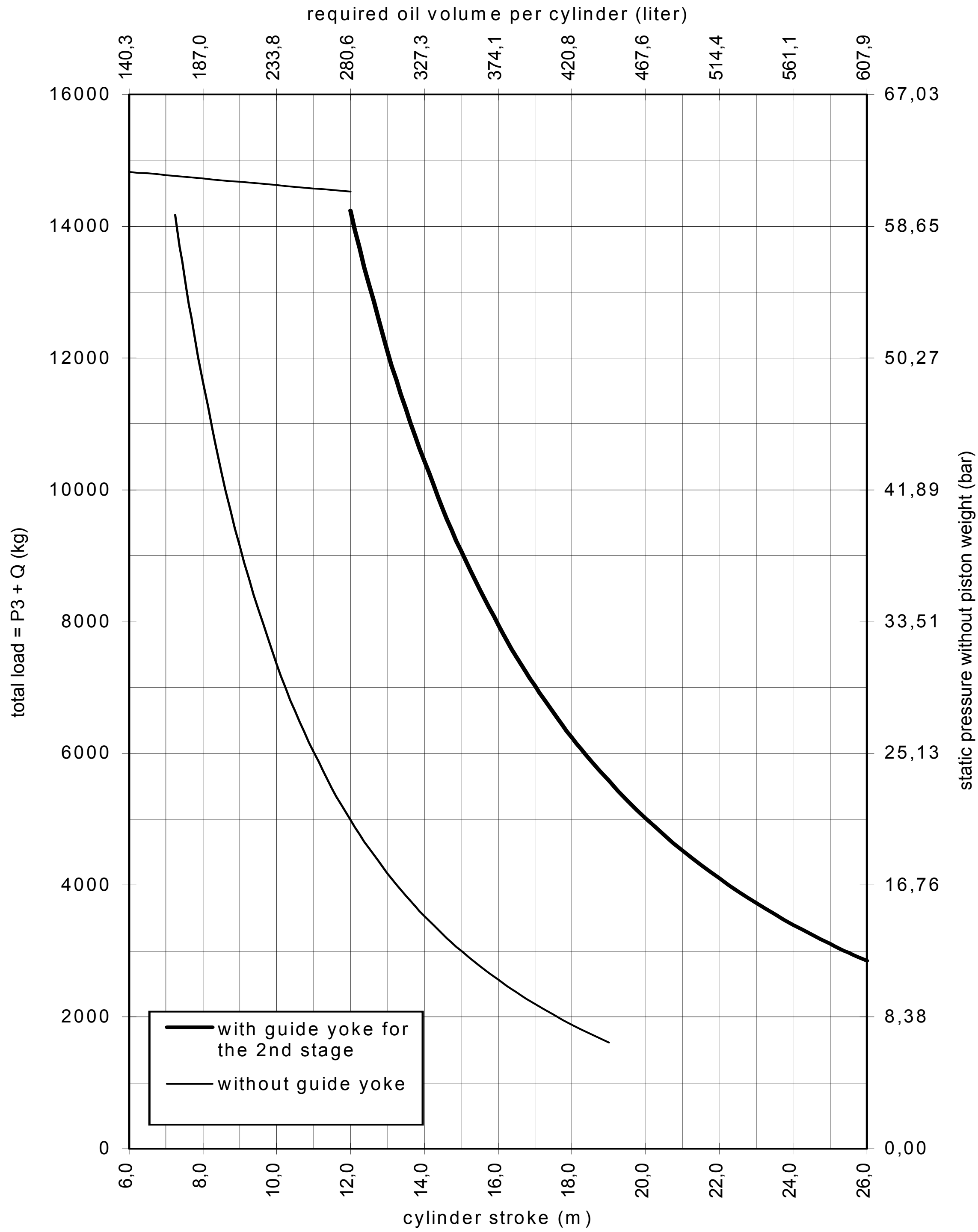
Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 120/2 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 120 / 170 (mm)	Factor of excess pressure = 1,4
reference area	A = 170,110 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 93,272 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	42,233 (kg) (per meter stroke)	z = number of cylinders

2PX0272b.doc Mod. N°0318 del 02-07-2002

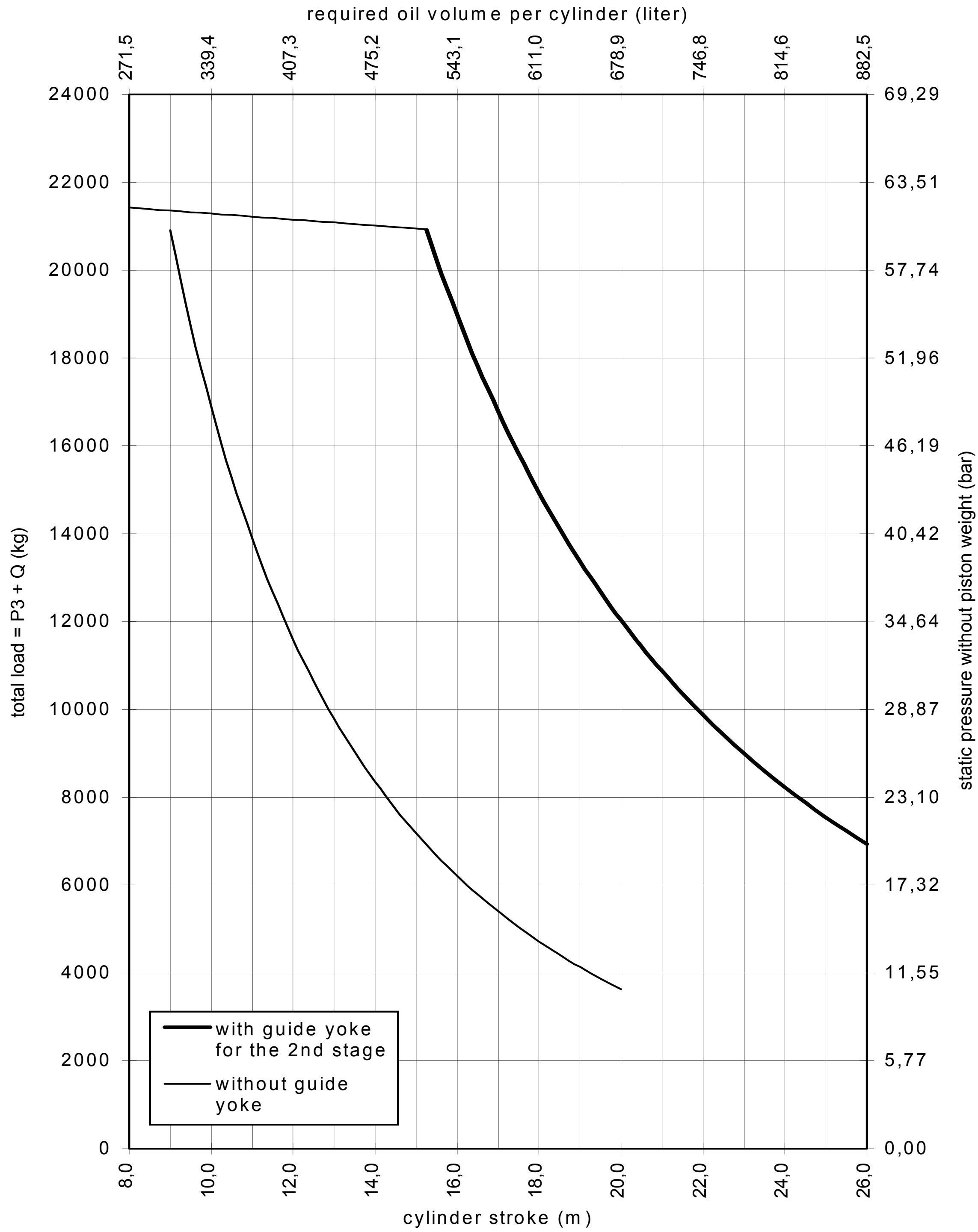
Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 140/2 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 140 / 200 (mm)	Factor of excess pressure = 1,4
reference area	A = 234,180 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 150,867 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	50,248 (kg) (per meter stroke)	z = number of cylinders

2PX0272b.doc Mod. N°0318 del 02-07-2002

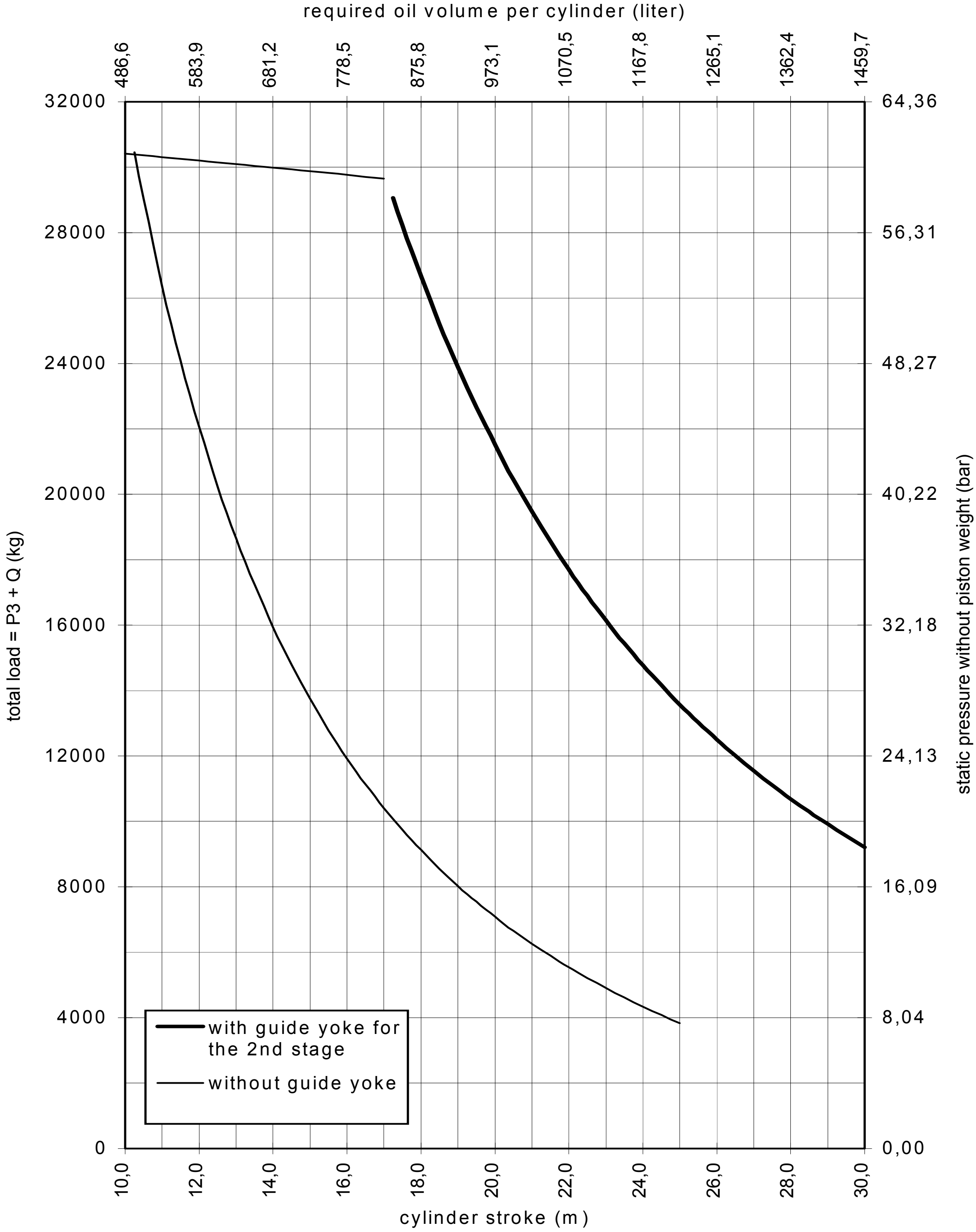
Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 170/2 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 170 / 240 (mm)	Factor of excess pressure = 1,4
reference area	A = 339,810 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 202,835 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	67,844 (kg) (per meter stroke)	z = number of cylinders

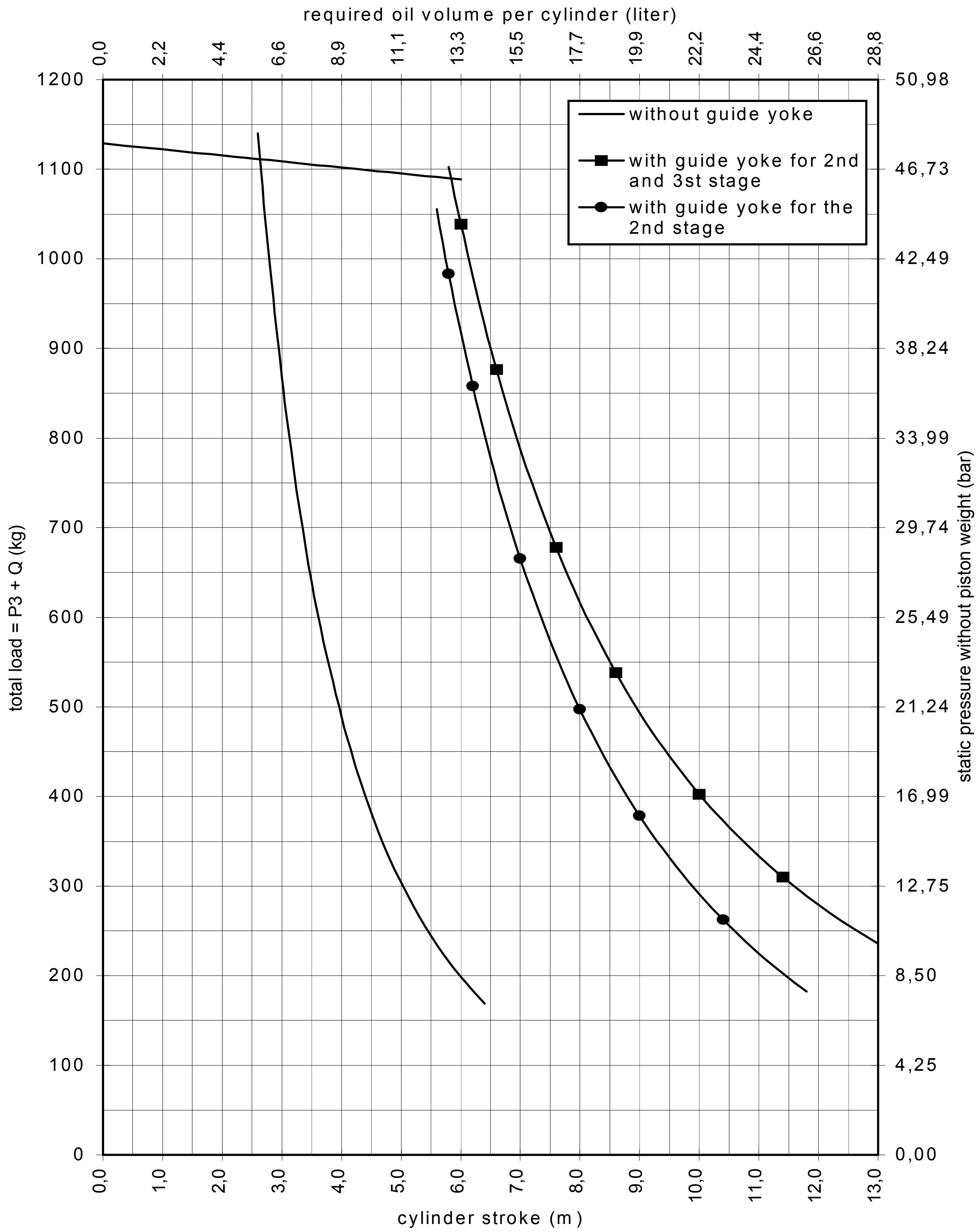
C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 2-stage cylinder - VT Series	emesso	S. A.	20/11/1998
		controllato		02-07-2002
Sost. il 2 PX 0272a	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 2 b	pag 10	di 11
Sost. da				

Selection diagram for Telescopic 2-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 200/2 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 64 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 200 / 290 (mm)	Factor of excess pressure = 1,4
reference area	A = 487,765 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 313,965 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	108,890 (kg) (per meter stroke)	z = number of cylinders

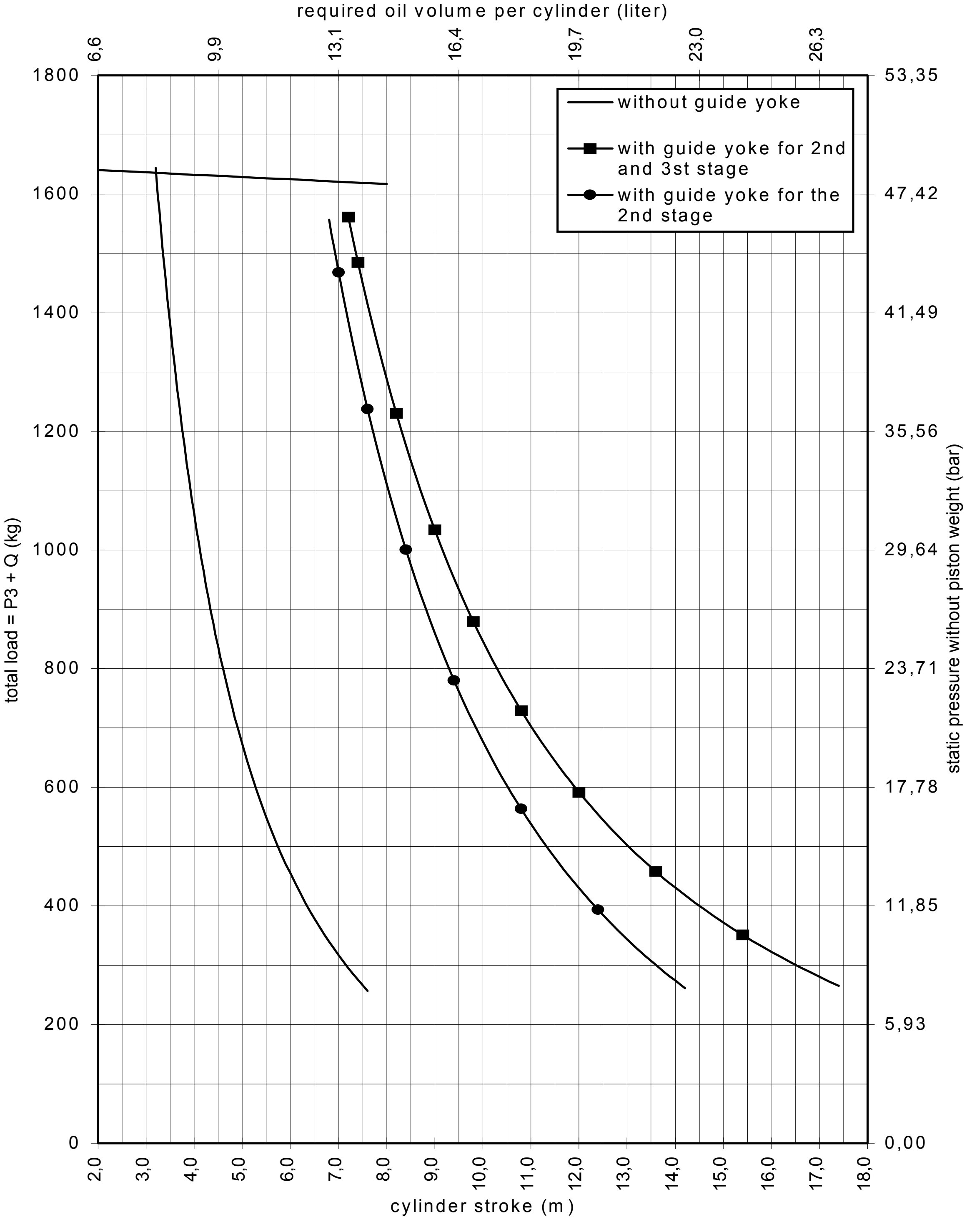
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 35/3 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 49 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 35 / 50 / 70 (mm)	Factor of excess pressure = 1,4
reference area	A = 23,090 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 28,488 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	6,702 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Central Direct System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0273	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 3 a	pag	1
Sost. da			di	9

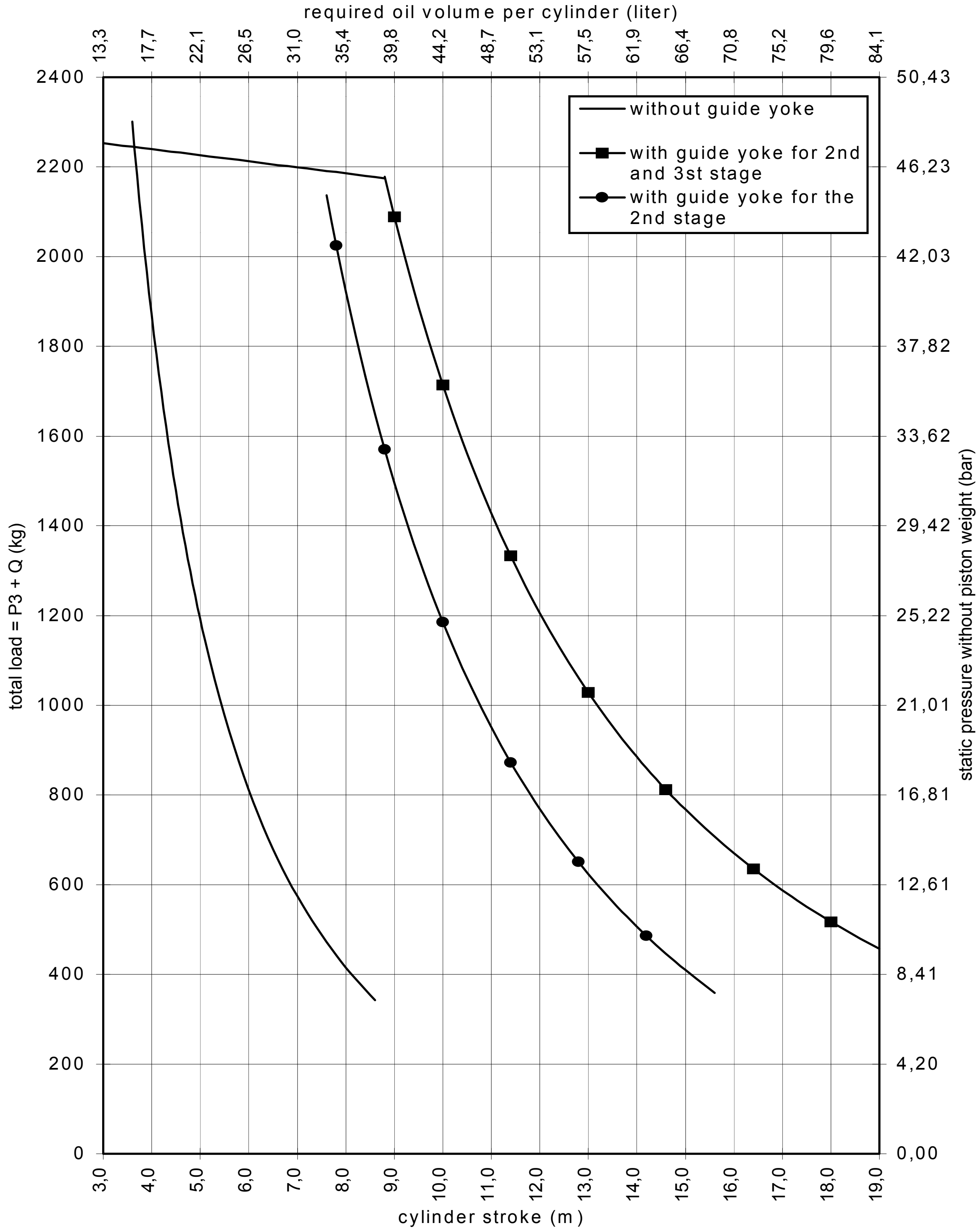
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 42/3 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 50 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 42 / 60 / 85 (mm)	Factor of excess pressure = 1,4
reference area	A = 33,100 (cm²)	Q = pay load (kg)
weight of piston	m_p = 32,790 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	9,782 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Central Direct System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0273	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 3 a	pag 2	
Sost. da			di 9	

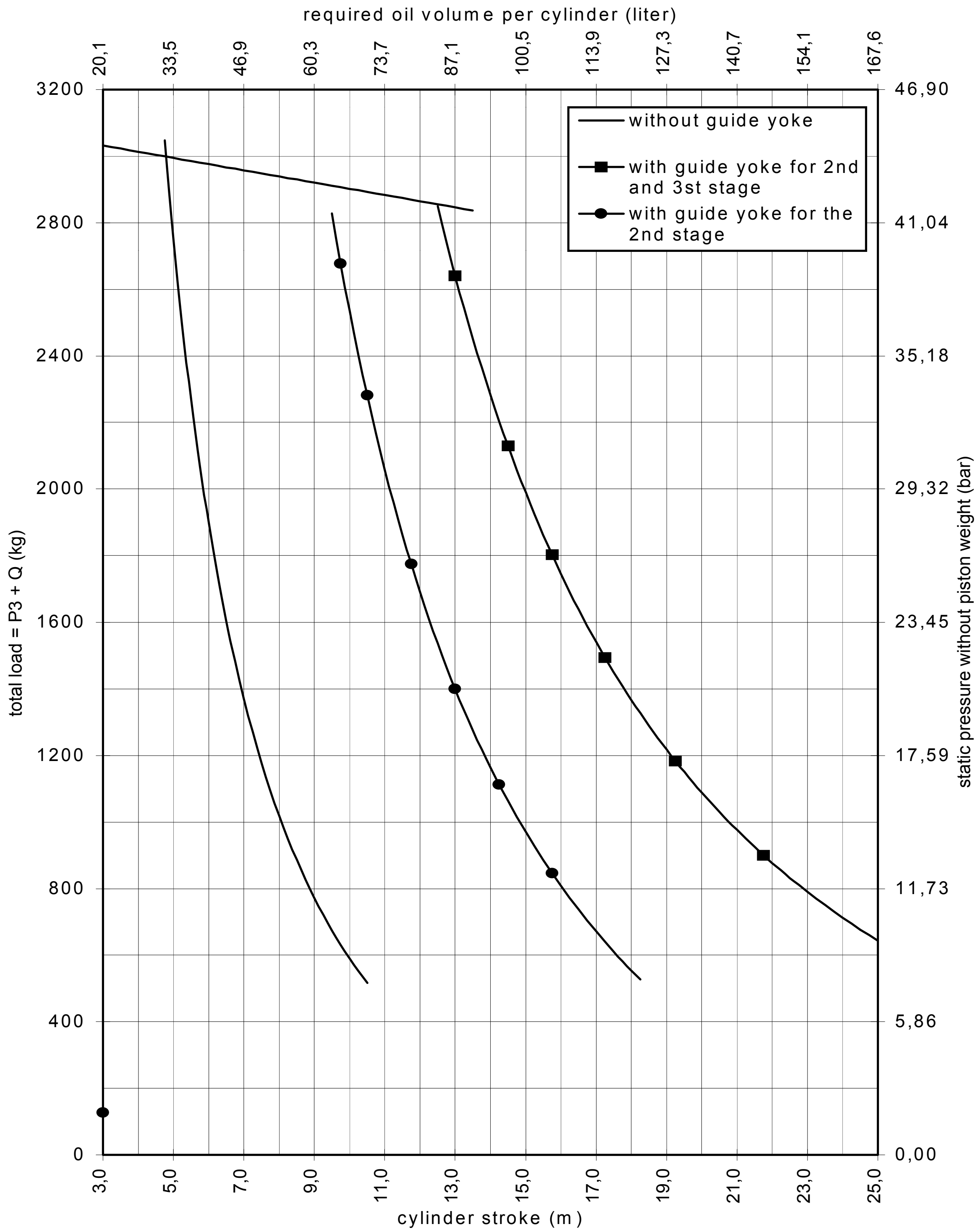
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 50/3 - VE



Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 49 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 50 / 70 / 100 (mm)	Factor of excess pressure = 1,4
reference area	A = 46,684 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 45,498 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	13,512 (kg) (per meter stroke)	z = number of cylinders

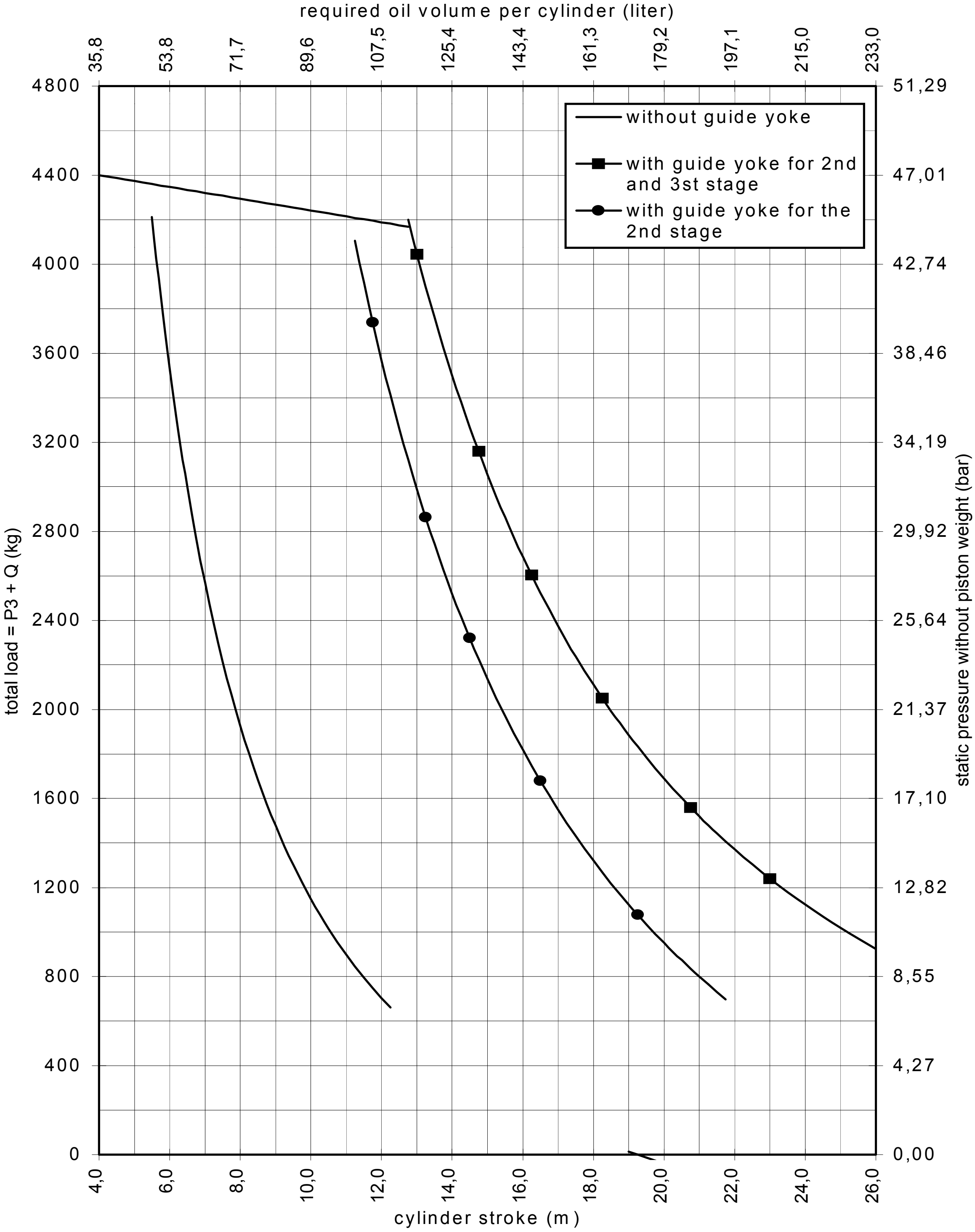
C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Central Direct System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0273	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 3 a	pag 3	di 9
Sost. da				

Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 63/3 - VE



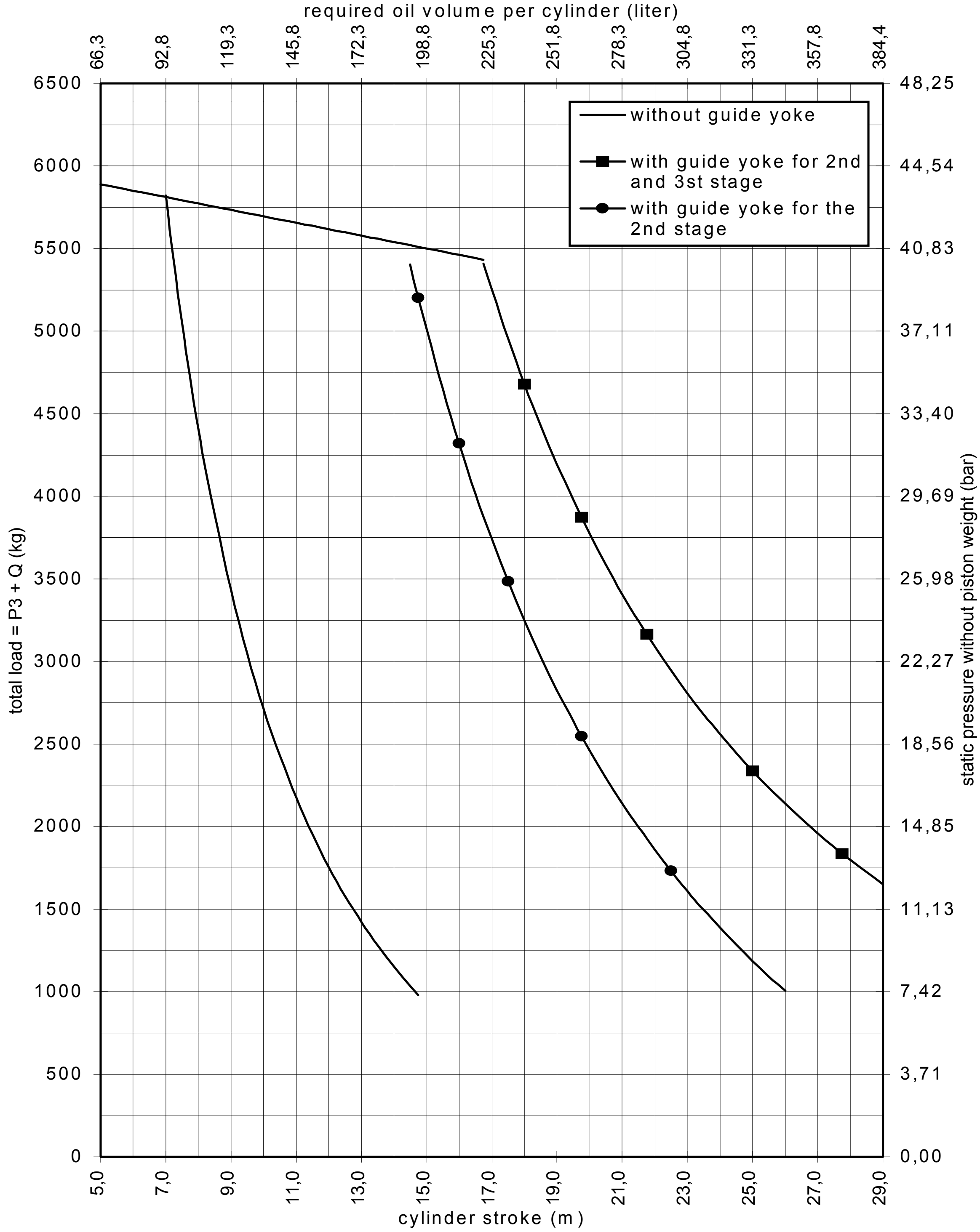
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 46 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 63 / 85 / 120 (mm)	Factor of excess pressure = 1,4
reference area	A = 66,928 (cm²)	Q = pay load (kg)
weight of piston	m_p = 61,714 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	18,556 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 70/3 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 49 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 70 / 100 / 140 (mm)	Factor of excess pressure = 1,4
reference area	A = 91,816 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 94,726 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	26,460 (kg) (per meter stroke)	z = number of cylinders

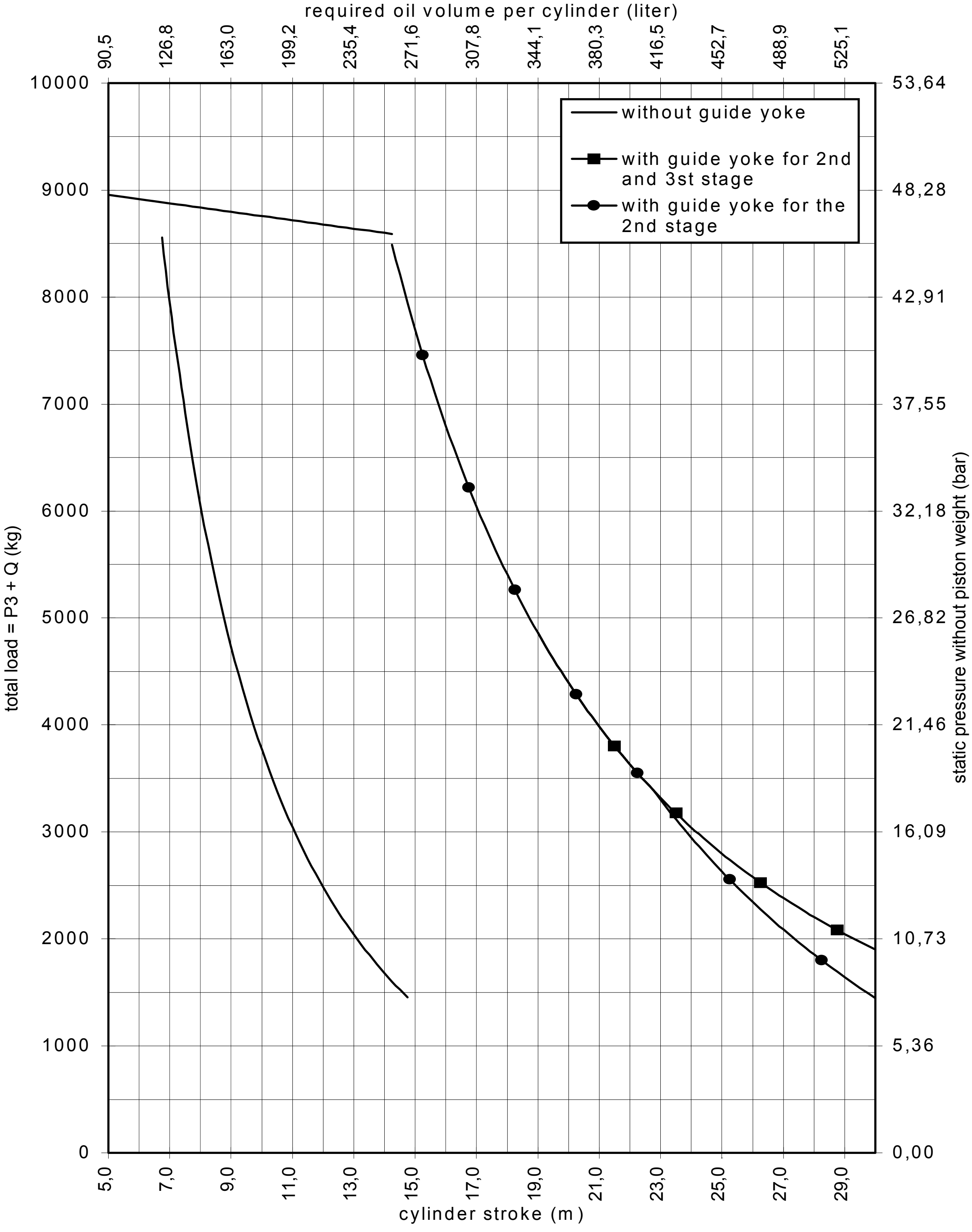
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 85/3 - VE



Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 46 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 85 / 100 / 170 (mm)	Factor of excess pressure = 1,4
reference area	A = 132,161 (cm²)	Q = pay load (kg)
weight of piston	m_p = 134,587 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	38,875 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Central Direct System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0273	DOCUMENTAZIONI TECNICHE	2PX0273a	pag 6	di 9
Sost. da				

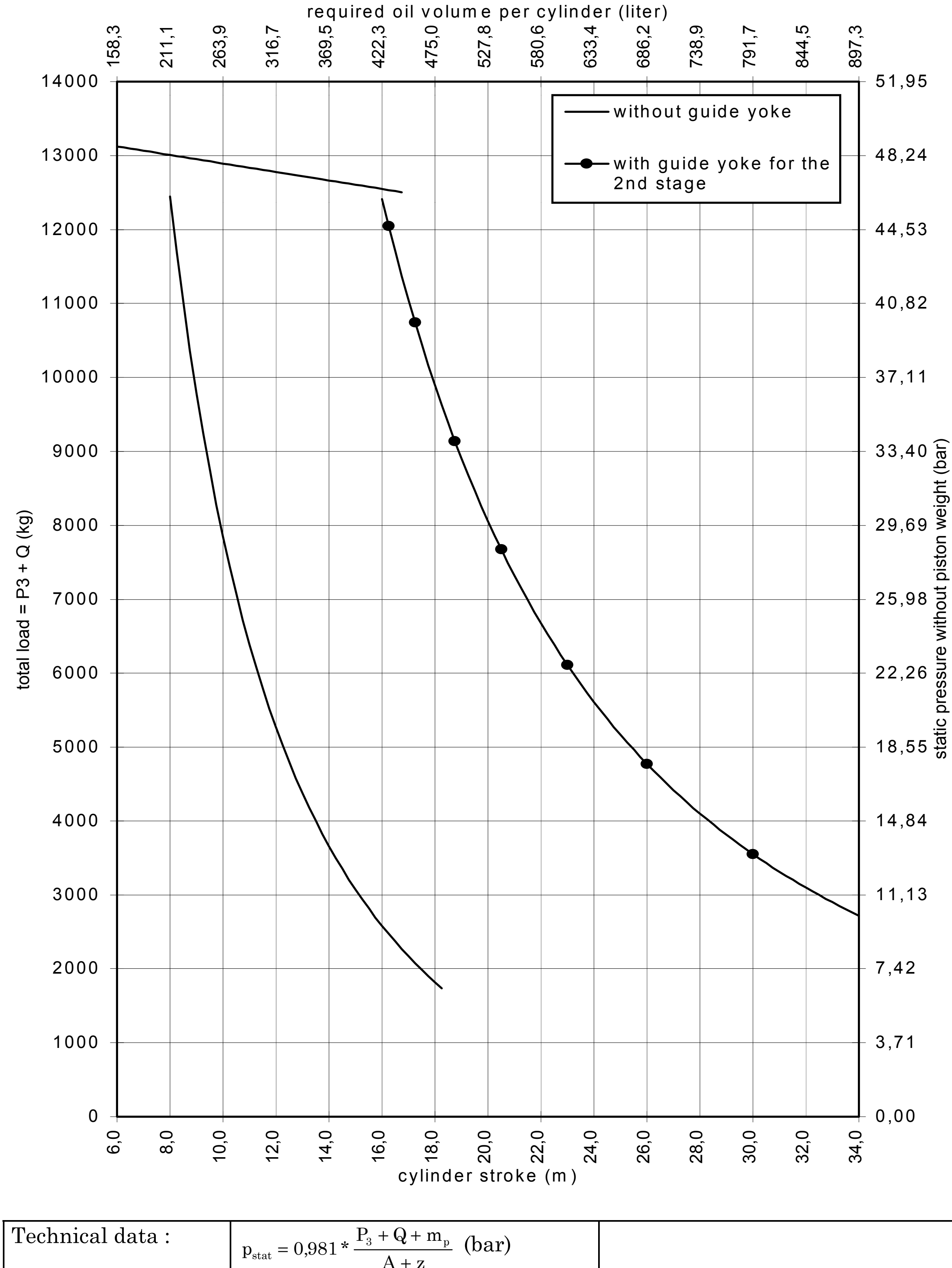
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 100/3 - VE



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 50 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 100 / 140 / 200 (mm)	Factor of excess pressure = 1,4
reference area	A = 182,891 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 184,472 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	39,491 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Central Direct System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0273	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 3 a	pag 7	di 9
Sost. da				

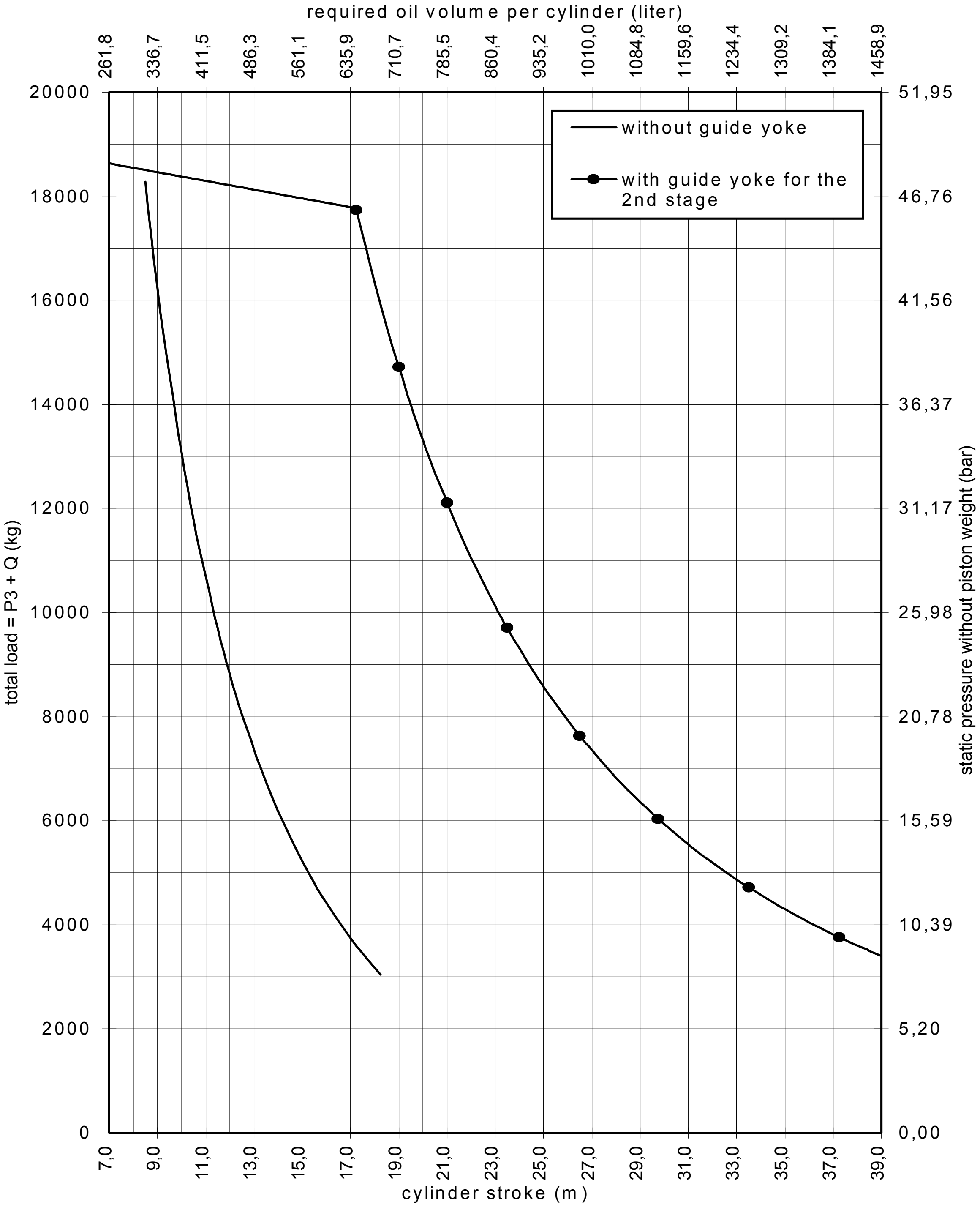
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 120/3 - VE



Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 51 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 120 / 170 / 240 (mm)	Factor of excess pressure = 1,4
reference area	A = 264,365 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 298,530 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	57,671 (kg) (per meter stroke)	z = number of cylinders

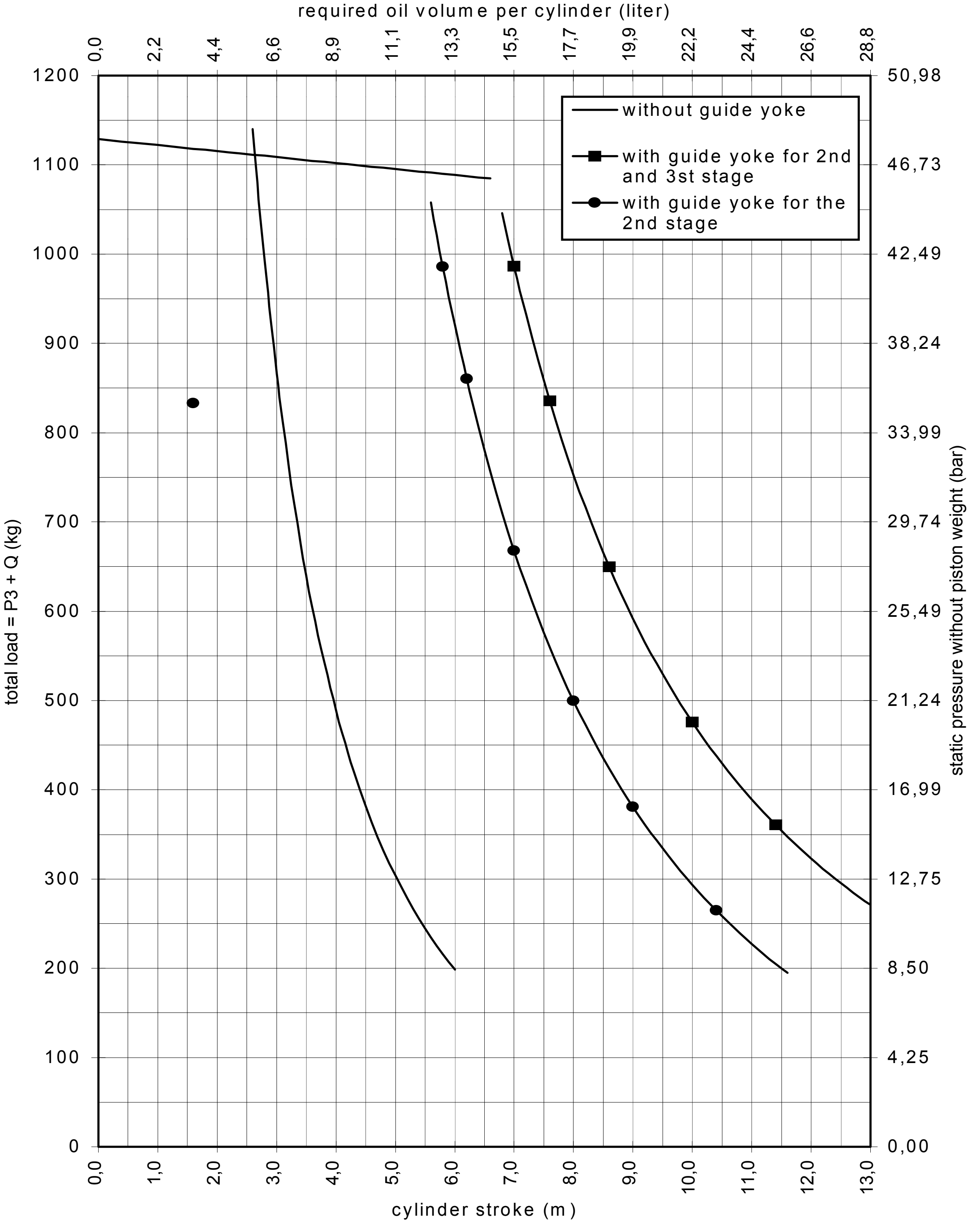
C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI		Selection diagram for telescopic 3-stage cylinder - Central Direct System	emesso	S. A.	20/11/1998
			controllato		20/11/1998
			nullaosta		
Sost. il	2PX0273	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 3 a	pag 8	di 9
Sost. da					

Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Central Direct System
Type 3PL 140/3 - VE



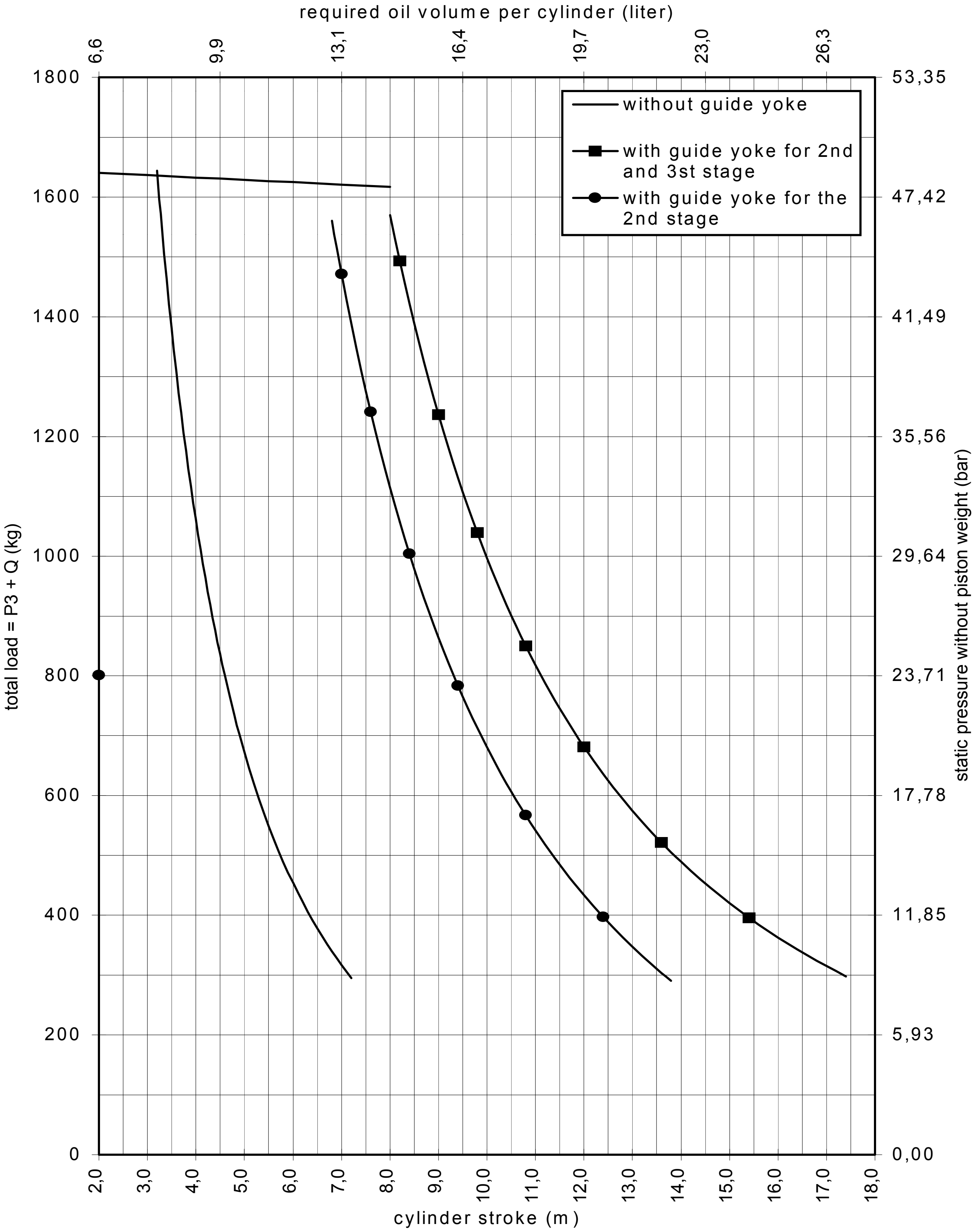
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 51 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 140 / 200 / 290 (mm)	Factor of excess pressure = 1,4
reference area	A = 377,655 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 441,973 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	83,981 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 35/3 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 49 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 35 / 50 / 70 (mm)	Factor of excess pressure = 1,4
reference area	A = 23,090 (cm²)	Q = pay load (kg)
weight of piston	m_p = 24,465 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	6,702 (kg) (per meter stroke)	z = number of cylinders

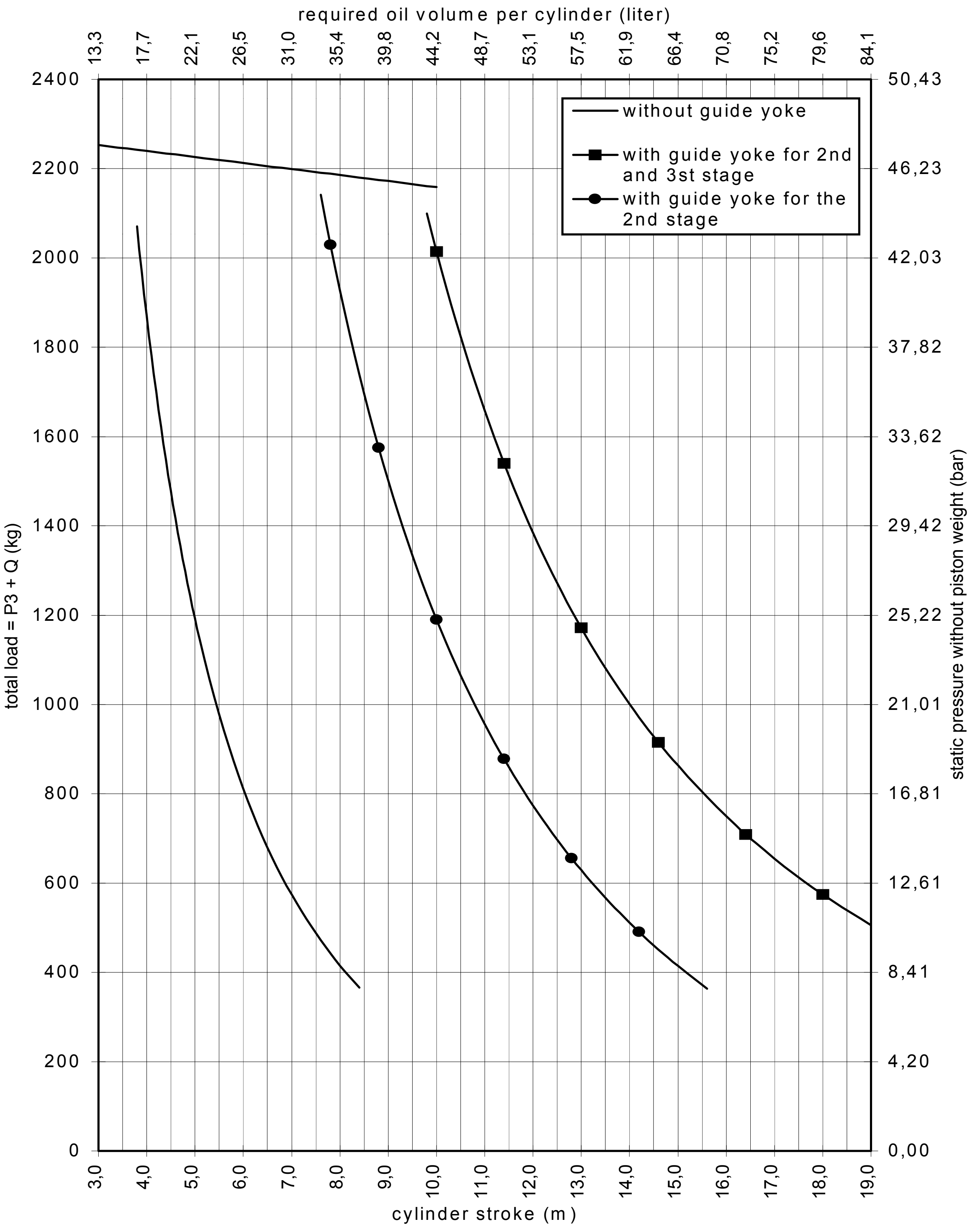
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 42/3 - RS



Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 50 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 42 / 60 / 85 (mm)	Factor of excess pressure = 1,4
reference area	A = 33,100 (cm²)	Q = pay load (kg)
weight of piston	m_p = 27,014 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	9,782 (kg) (per meter stroke)	z = number of cylinders

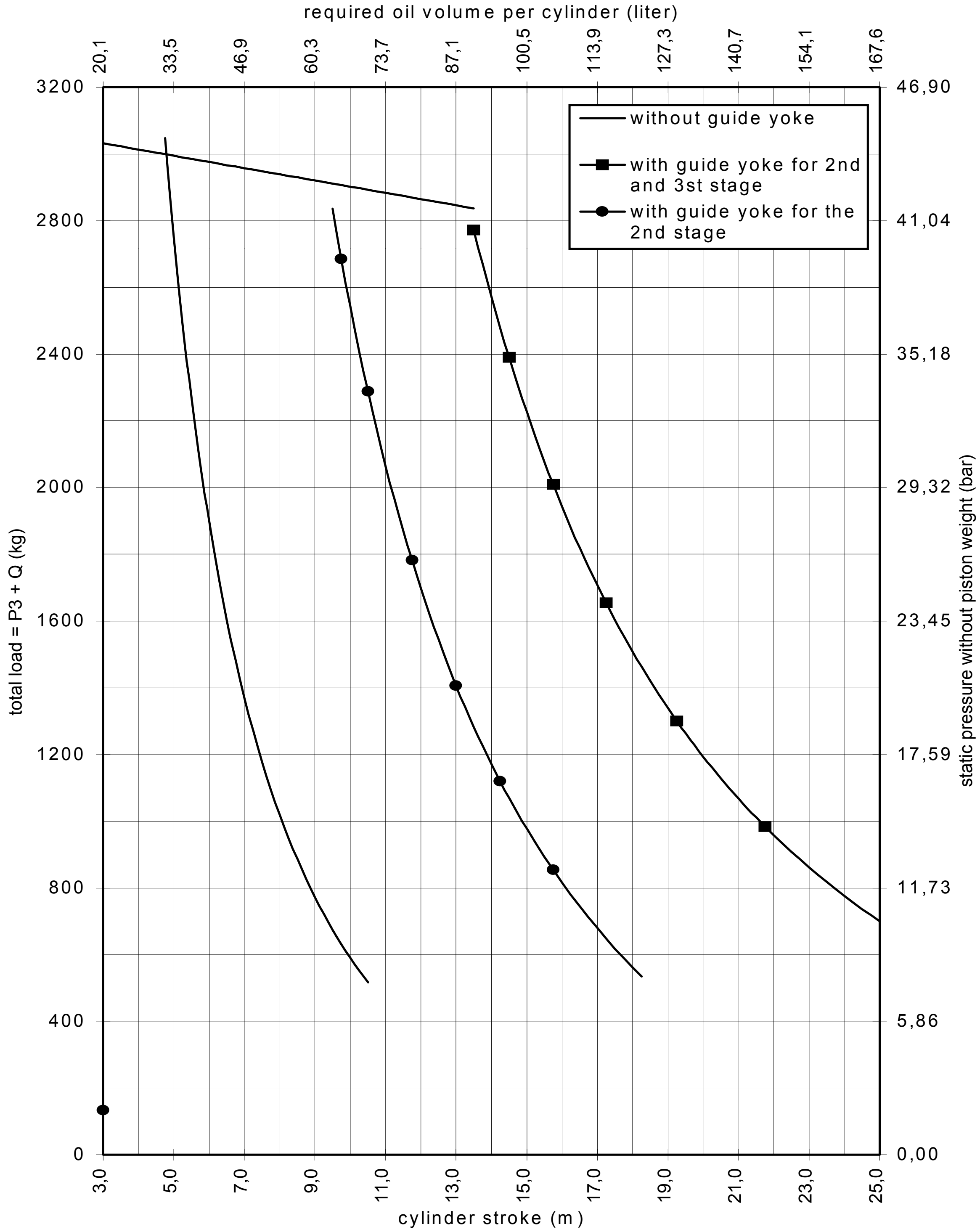
C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Side Ram System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0274	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 4 a	pag 2	di 9
Sost. da				

Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 50/3 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 49 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 50 / 70 / 100 (mm)	Factor of excess pressure = 1,4
reference area	A = 46,684 (cm²)	Q = pay load (kg)
weight of piston	m_p = 38,022 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	13,512 (kg) (per meter stroke)	z = number of cylinders

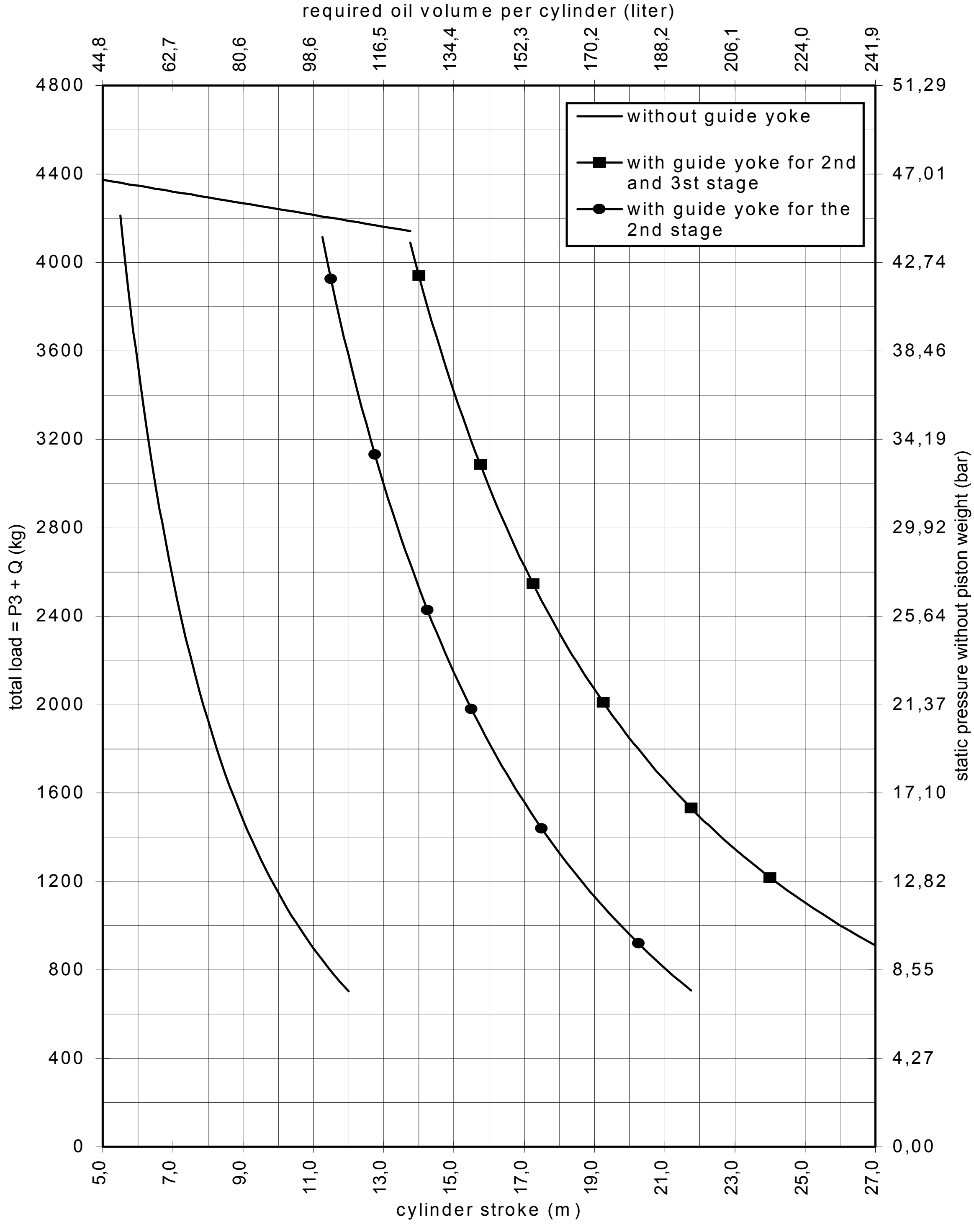
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 63/3 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 46 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 63 / 85 / 120 (mm)	Factor of excess pressure = 1,4
reference area	A = 66,928 (cm²)	Q = pay load (kg)
weight of piston	m_p = 50,866 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	18,556 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Side Ram System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0274	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 4 a	pag 4	di 9
Sost. da				

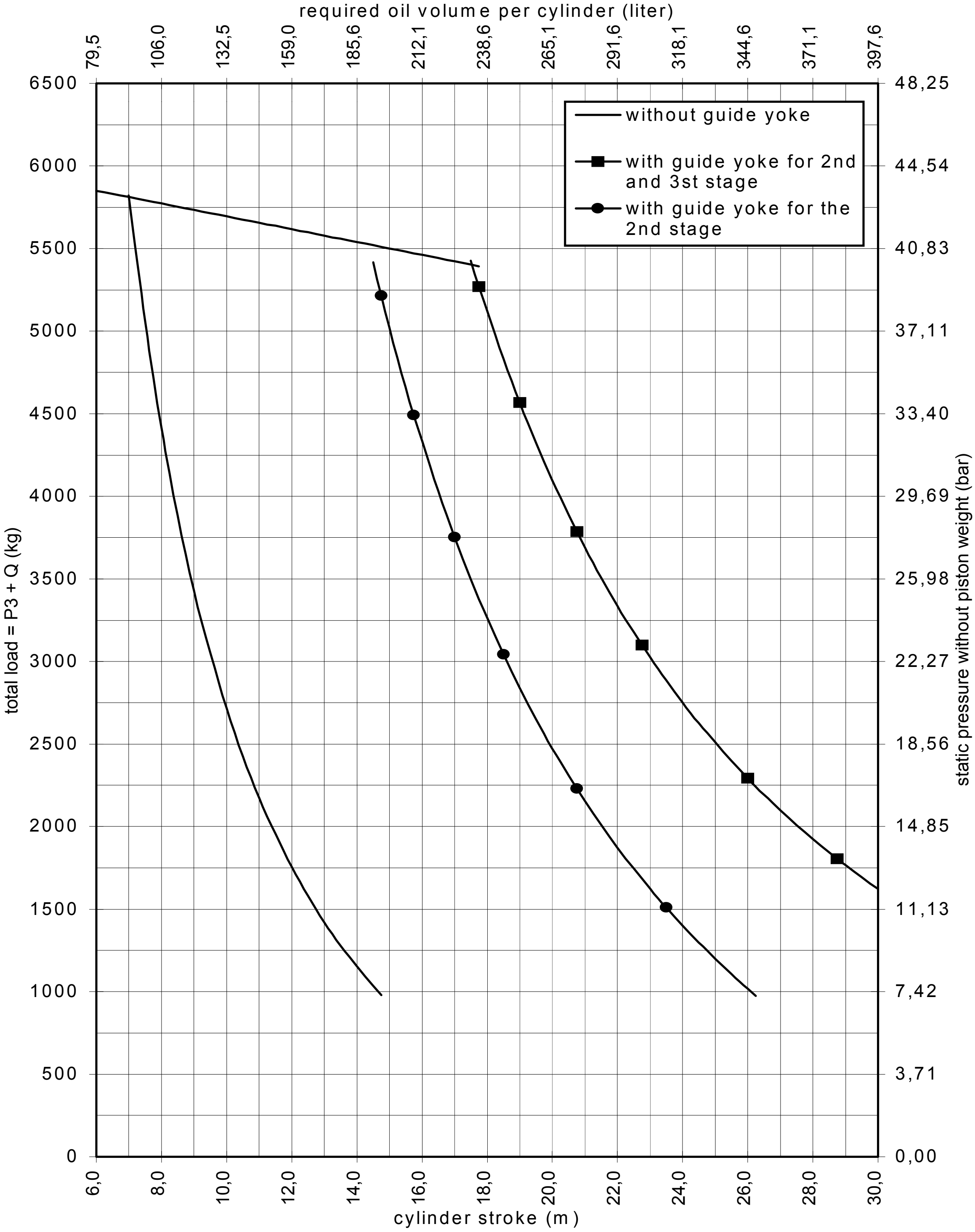
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 70/3 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 49 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 70 / 100 / 140 (mm)	Factor of excess pressure = 1,4
reference area	A = 91,816 (cm²)	Q = pay load (kg)
weight of piston	m_p = 80,530 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	26,460 (kg) (per meter stroke)	z = number of cylinders

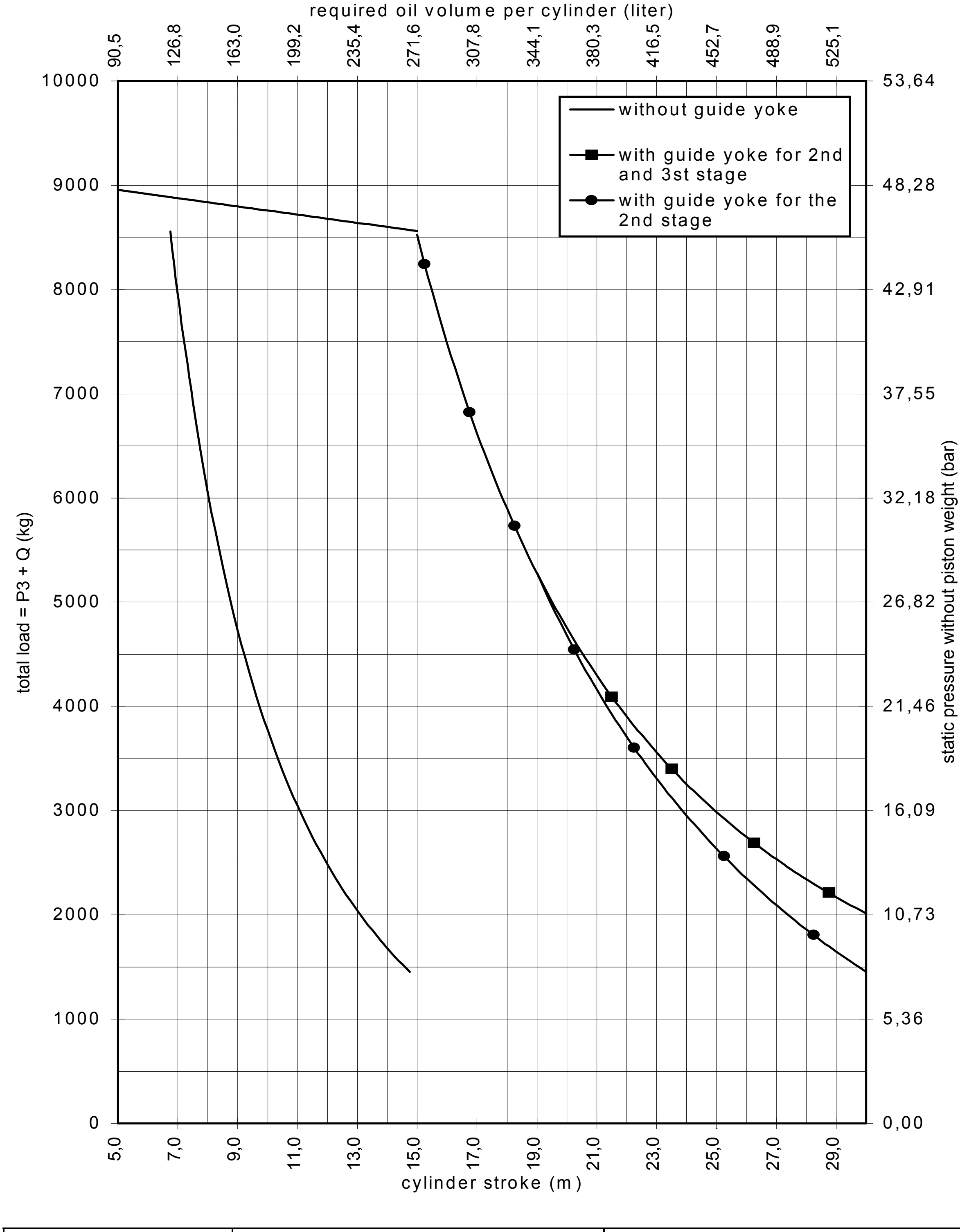
C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Side Ram System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0274	DOCUMENTAZIONI TECNICHE	2PX0274a	pag 5	di 9
Sost. da				

Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 85/3 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 46 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 85 / 100 / 170 (mm)	Factor of excess pressure = 1,4
reference area	A = 132,161 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 113,149 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	38,875 (kg) (per meter stroke)	z = number of cylinders

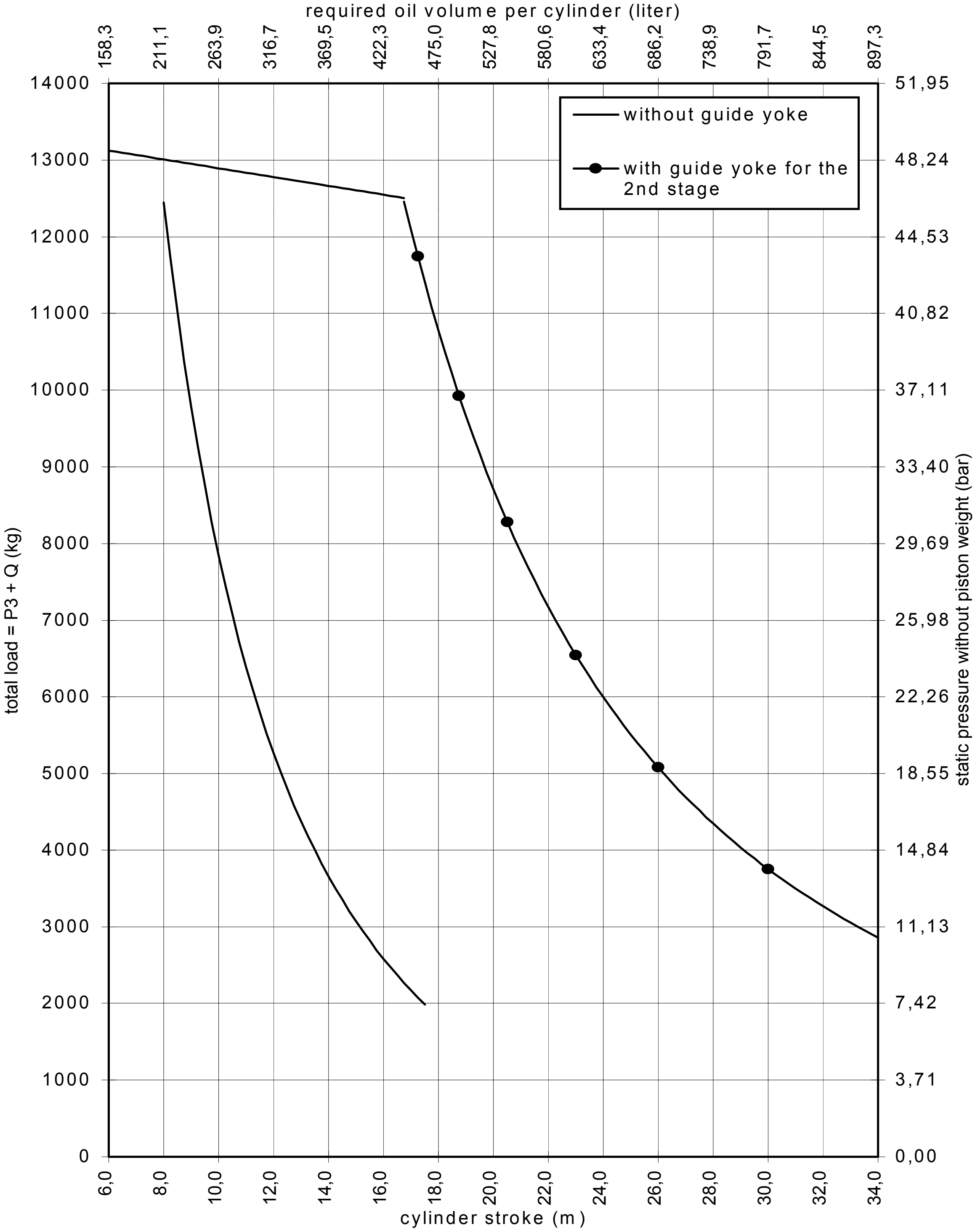
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 100/3 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 50 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 100 / 140 / 200 (mm)	Factor of excess pressure = 1,4
reference area	A = 182,891 (cm²)	Q = pay load (kg)
weight of piston	m_p = 168,195 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	39,491 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Side Ram System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0274	DOCUMENTAZIONI TECNICHE	2PX0274a	pag 7	
Sost. da			di 9	

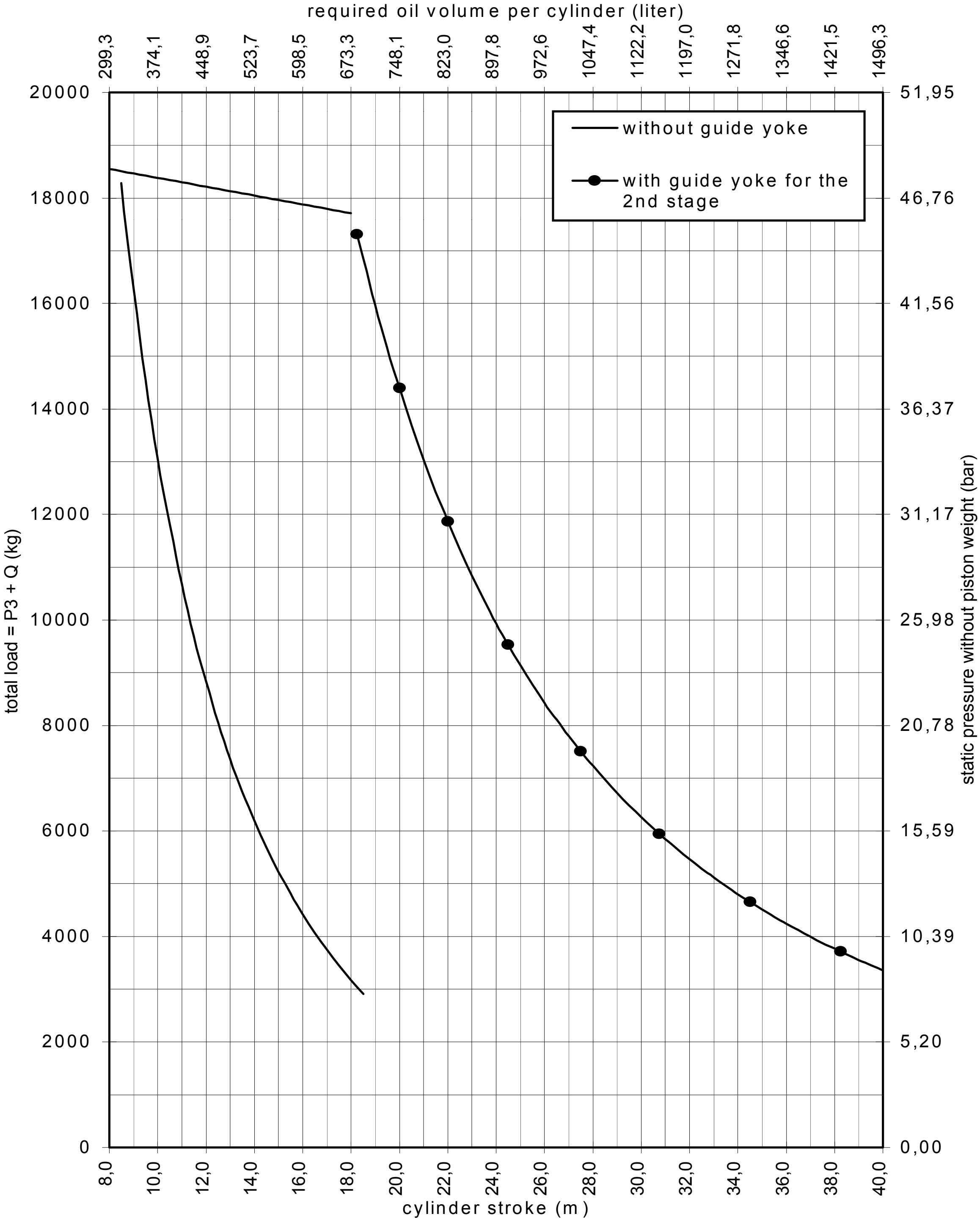
Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 120/3 - RS



Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 51 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 120 / 170 / 240 (mm)	Factor of excess pressure = 1,4
reference area	A = 264,365 (cm²)	Q = pay load (kg)
weight of piston	m_p = 273,191 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	57,671 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Side Ram System	emesso	S. A.	20/11/1998	
		controllato		20/11/1998	
		nullaosta			
Sost. il	2PX0274	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 4 a	pag	8
Sost. da				di	9

Selection diagram for Telescopic 3-stage Cylinder
Acc. to EN 81/2 - Side Ram System
Type 3PL 140/3 - RS



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 51 (bar)	Factor of safety to buckling = 2,0
piston rod diameter	d_a = 140 / 200 / 290 (mm)	Factor of excess pressure = 1,4
reference area	A = 377,655 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 411,824 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	83,981 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - Side Ram System	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2PX0274	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 4 a	pag 9	
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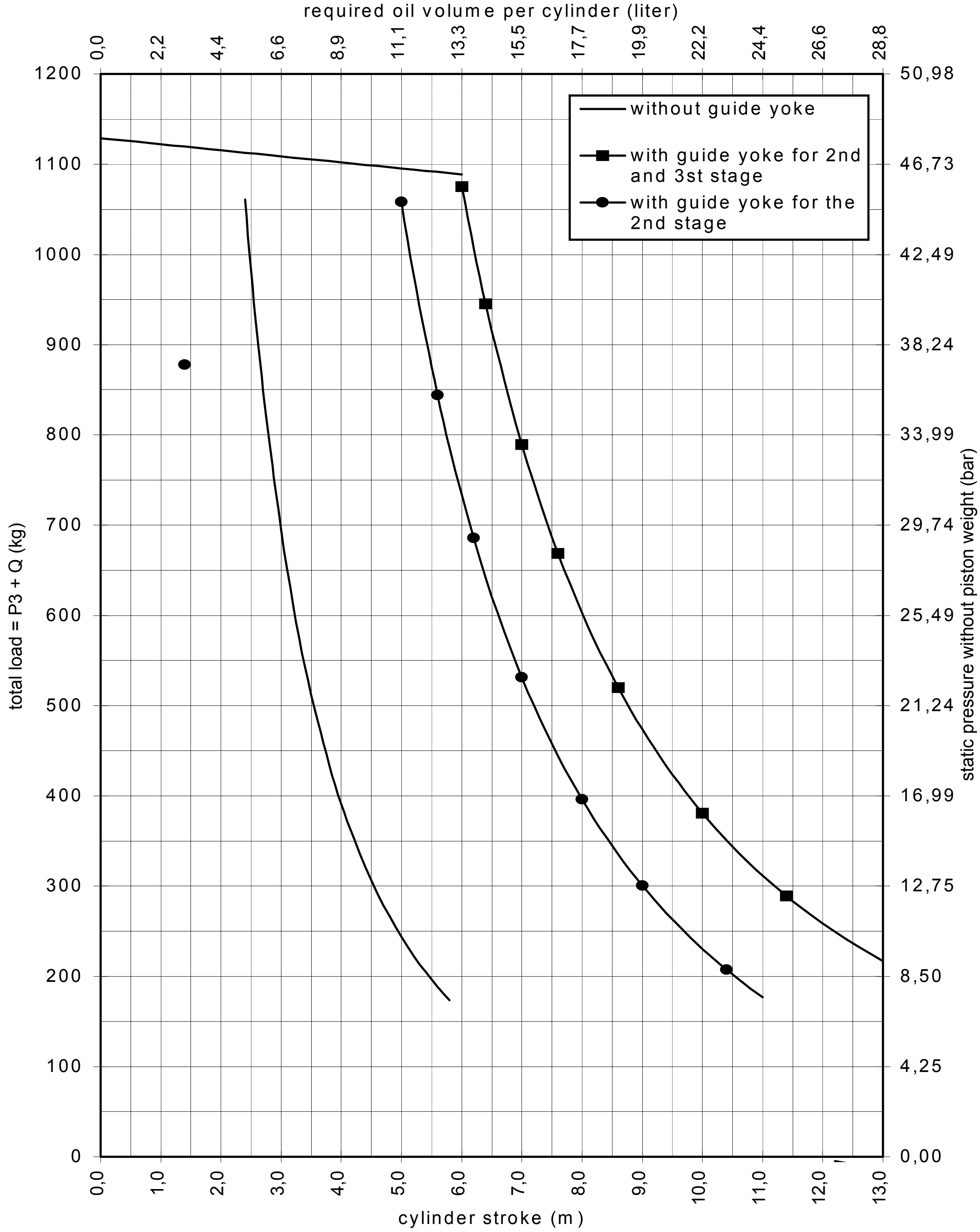
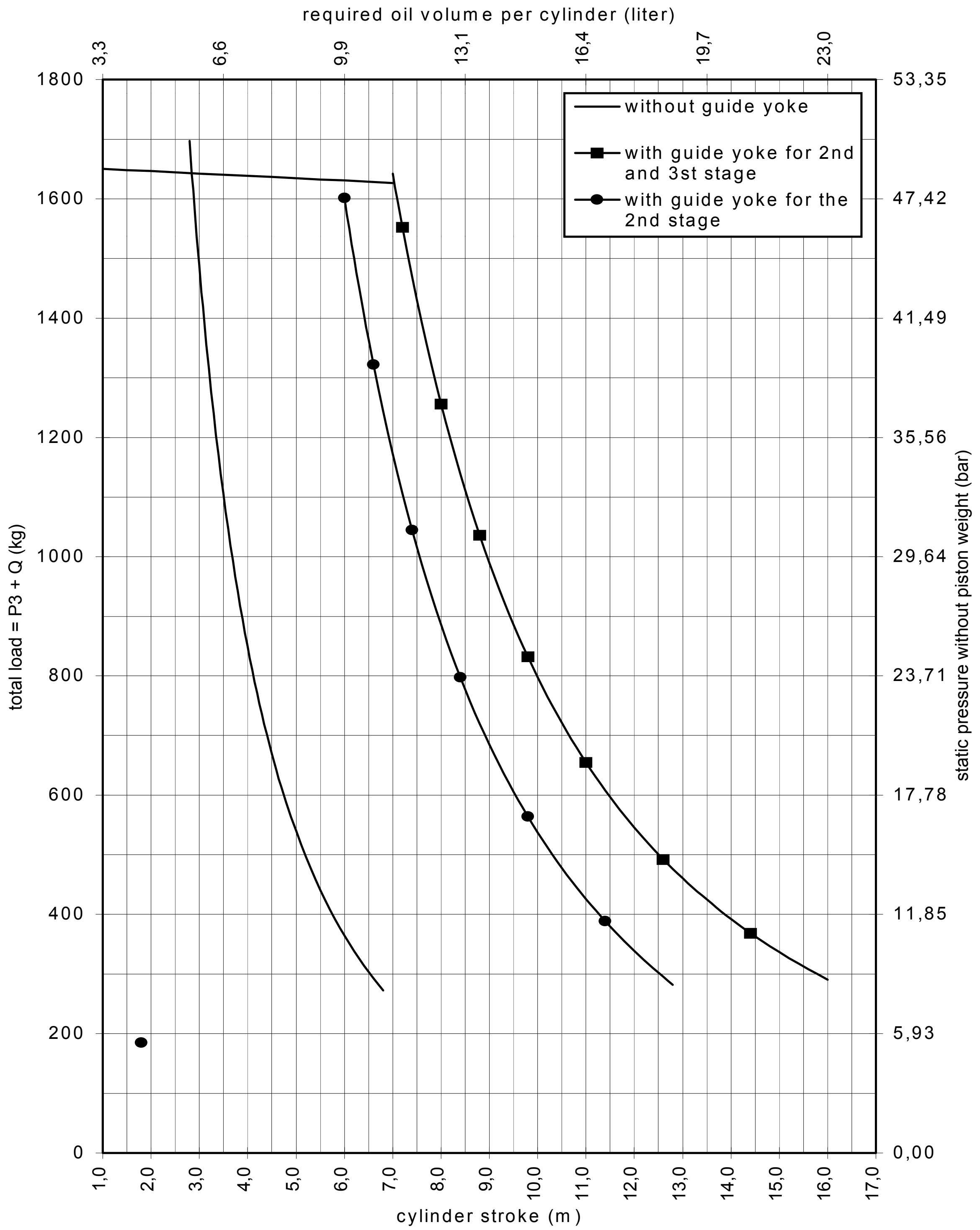
Selection diagram for Telescopic 3-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 35/3 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 49 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 35 / 50 / 70 (mm)	Factor of excess pressure = 1,4
reference area	A = 23,090 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 24,465 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	6,702 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - VT Series	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2 PX 0275	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 5 a	pag 1	di 9
Sost. da				

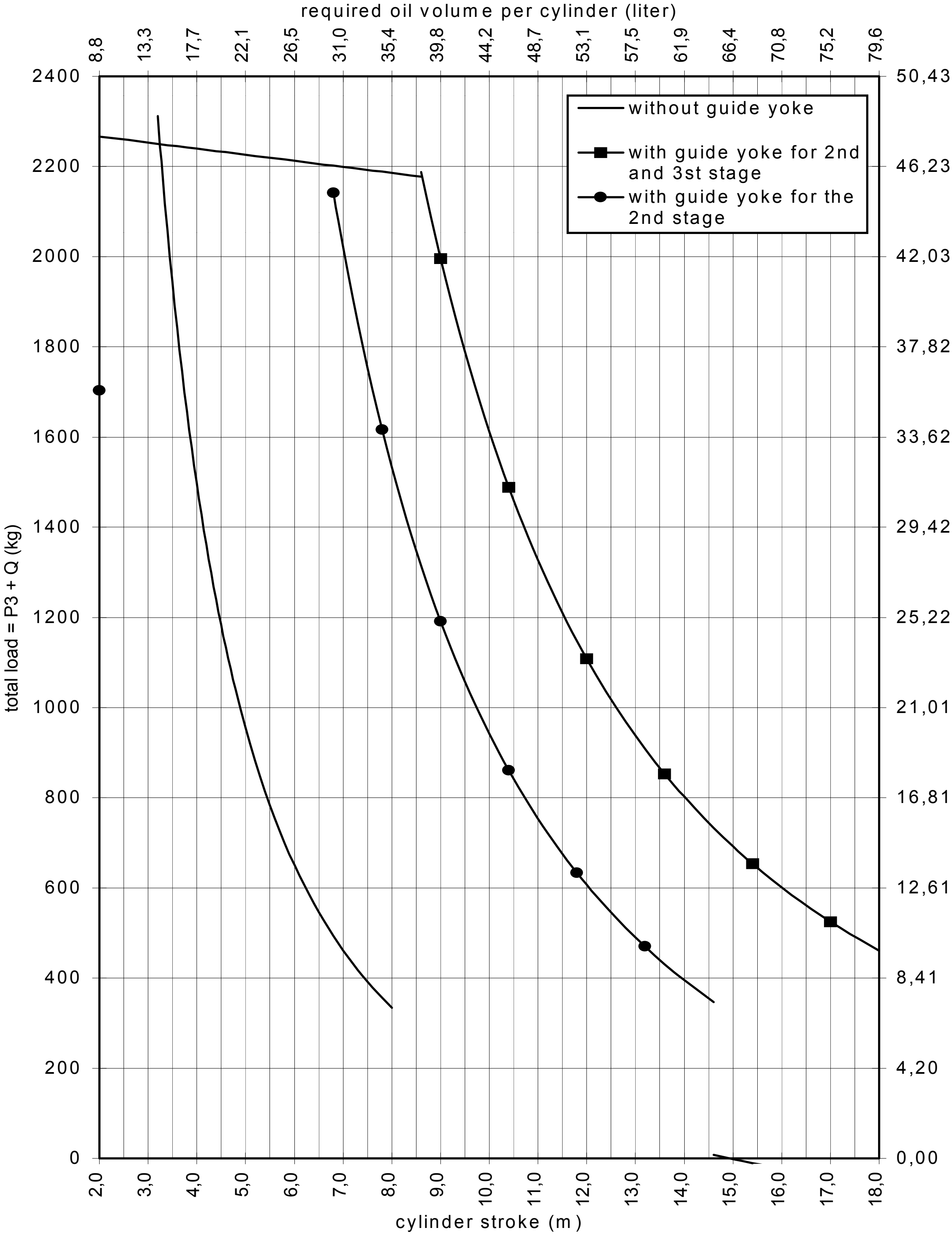
Selection diagram for Telescopic 3-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 42/3 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 50 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 42 / 60 / 85 (mm)	Factor of excess pressure = 1,4
reference area	A = 33,100 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 27,014 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	9,782 (kg) (per meter stroke)	z = number of cylinders

C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - VT Series	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2 PX 0275	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 5 a	pag 2	
Sost. da			di 9	

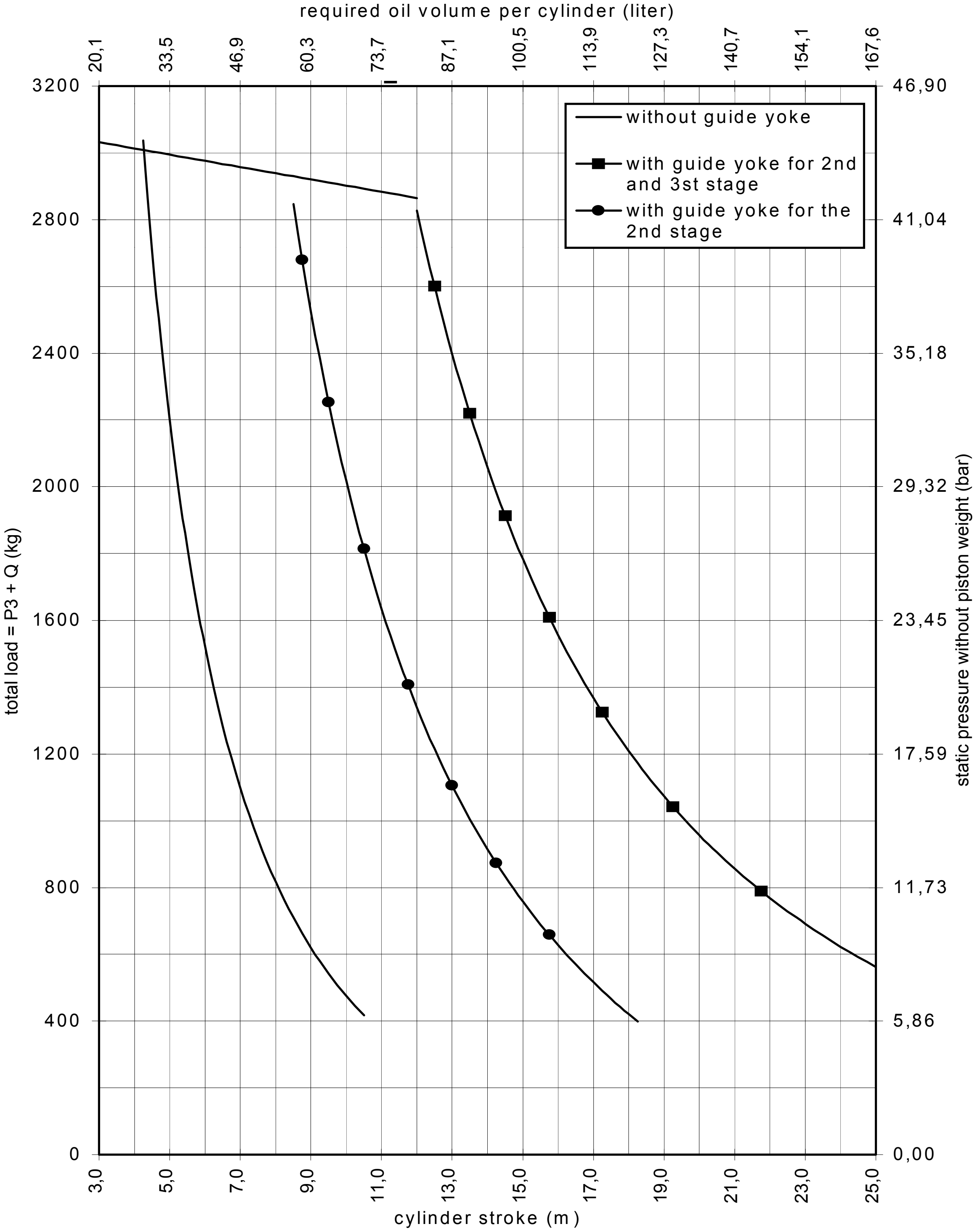
Selection diagram for Telescopic 3-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 50/3 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 49 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 50 / 70 / 100 (mm)	Factor of excess pressure = 1,4
reference area	A = 46,684 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 38,022 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	13,512 (kg) (per meter stroke)	z = number of cylinders

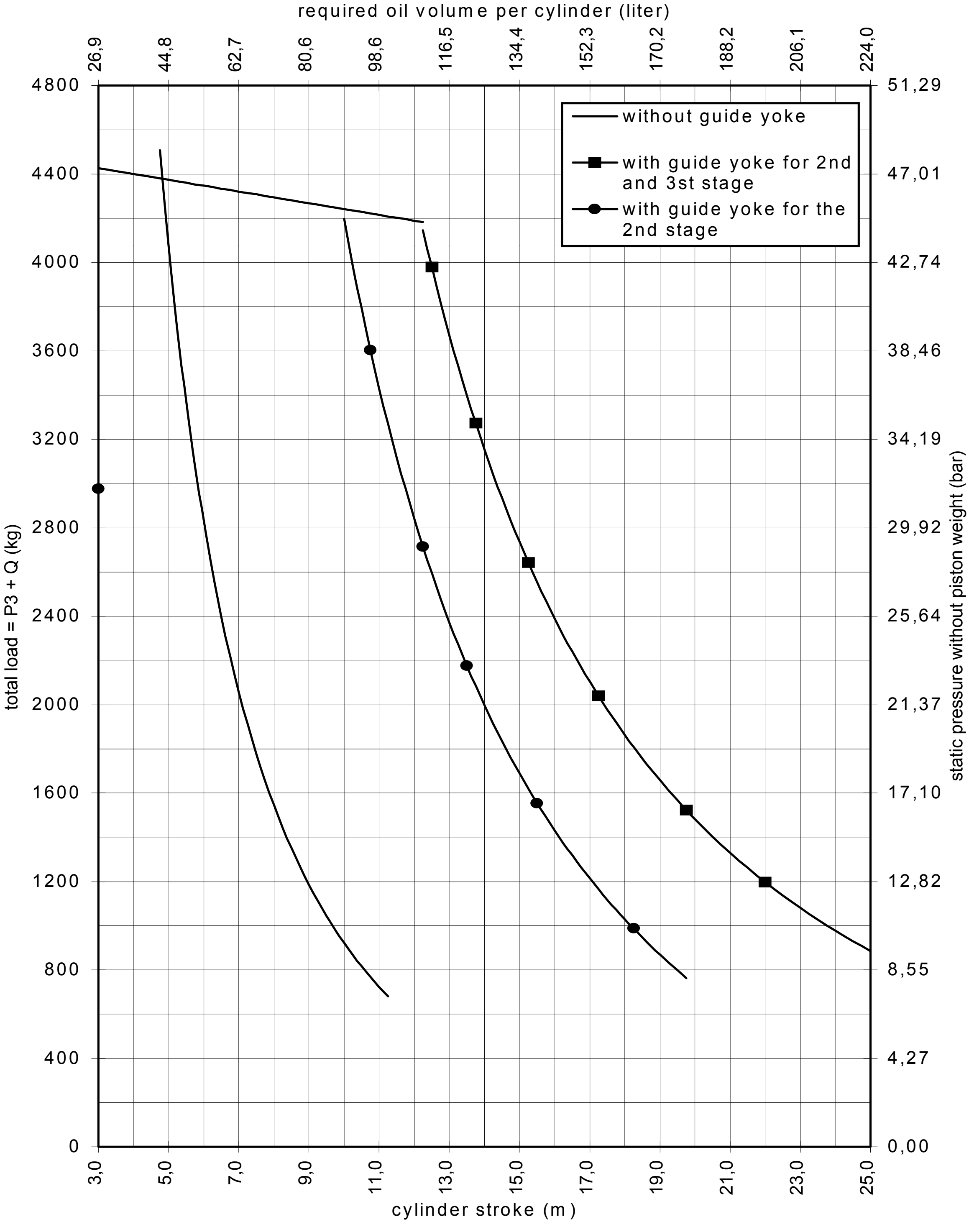
C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - VT Series	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2 PX 0275	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 5 a	pag 3	di 9
Sost. da				

Selection diagram for Telescopic 3-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 63/3 - VT



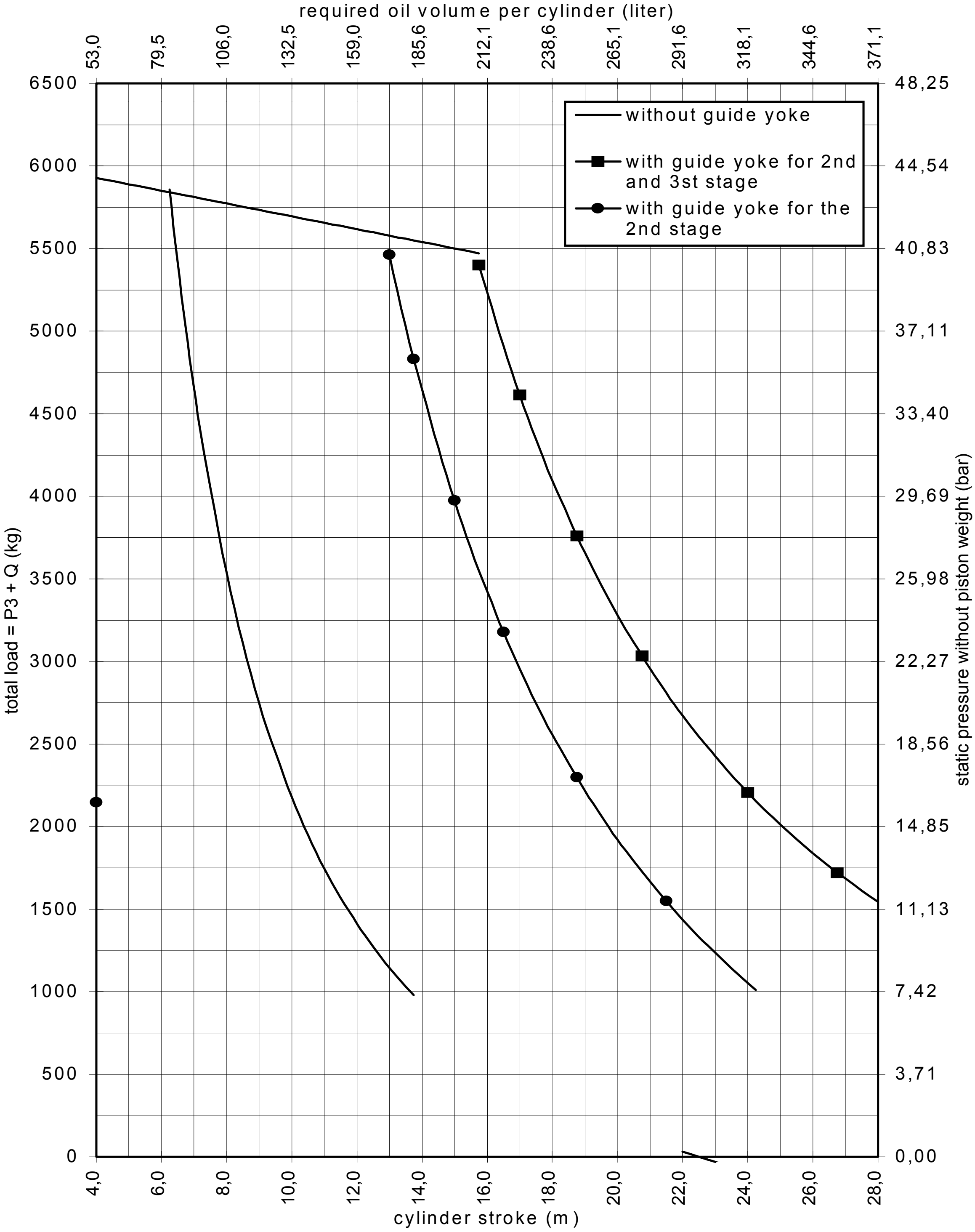
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 46 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 63 / 85 / 120 (mm)	Factor of excess pressure = 1,4
reference area	A = 66,928 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 50,866 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	18,556 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 3-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 70/3 - VT



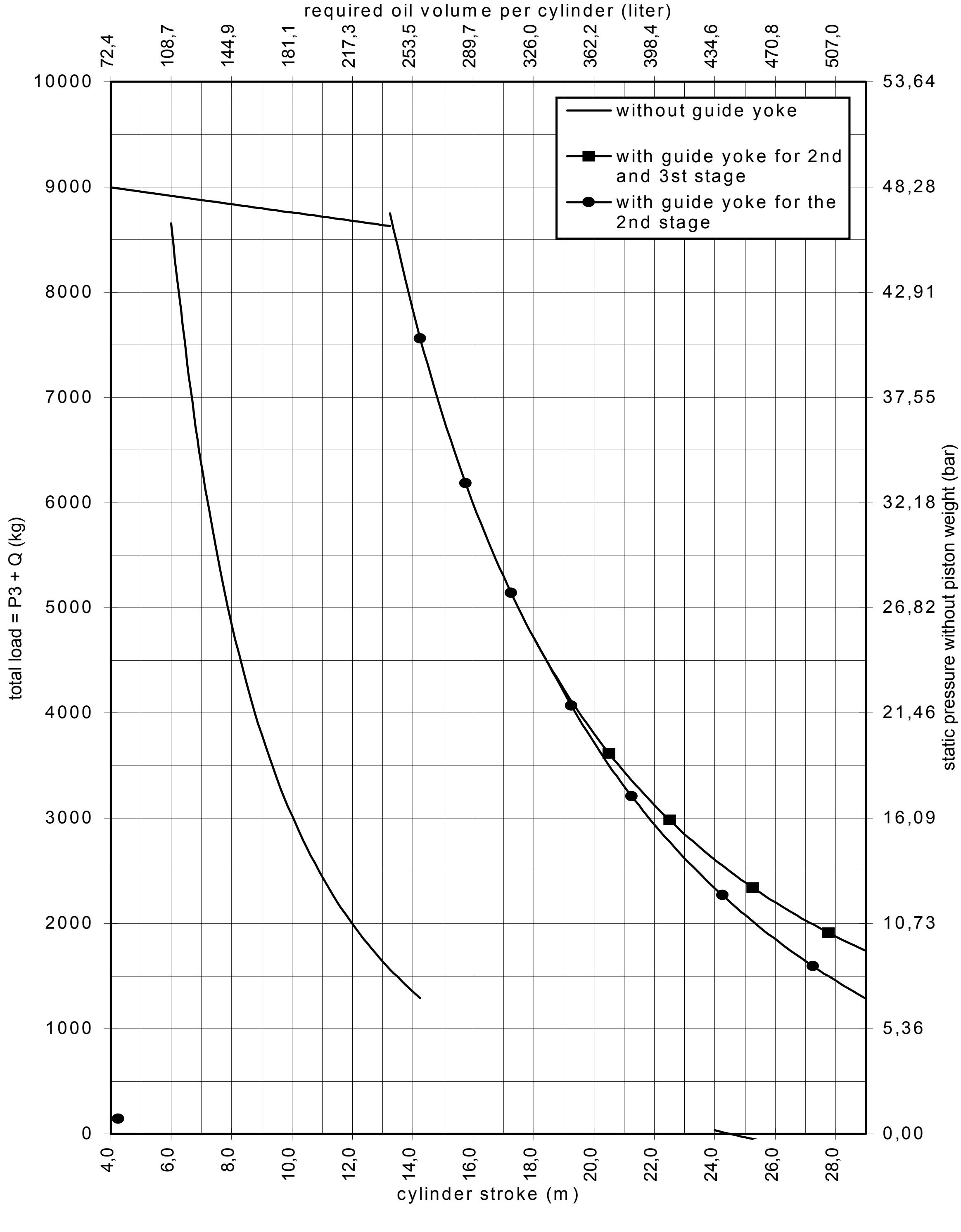
Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 49 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 70 / 100 / 140 (mm)	Factor of excess pressure = 1,4
reference area	A = 91,816 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 80,530 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	26,460 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 3-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 85/3 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 46 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 85 / 100 / 170 (mm)	Factor of excess pressure = 1,4
reference area	A = 132,161 (cm²)	Q = pay load (kg)
weight of piston	m_p = 113,149 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	38,875 (kg) (per meter stroke)	z = number of cylinders

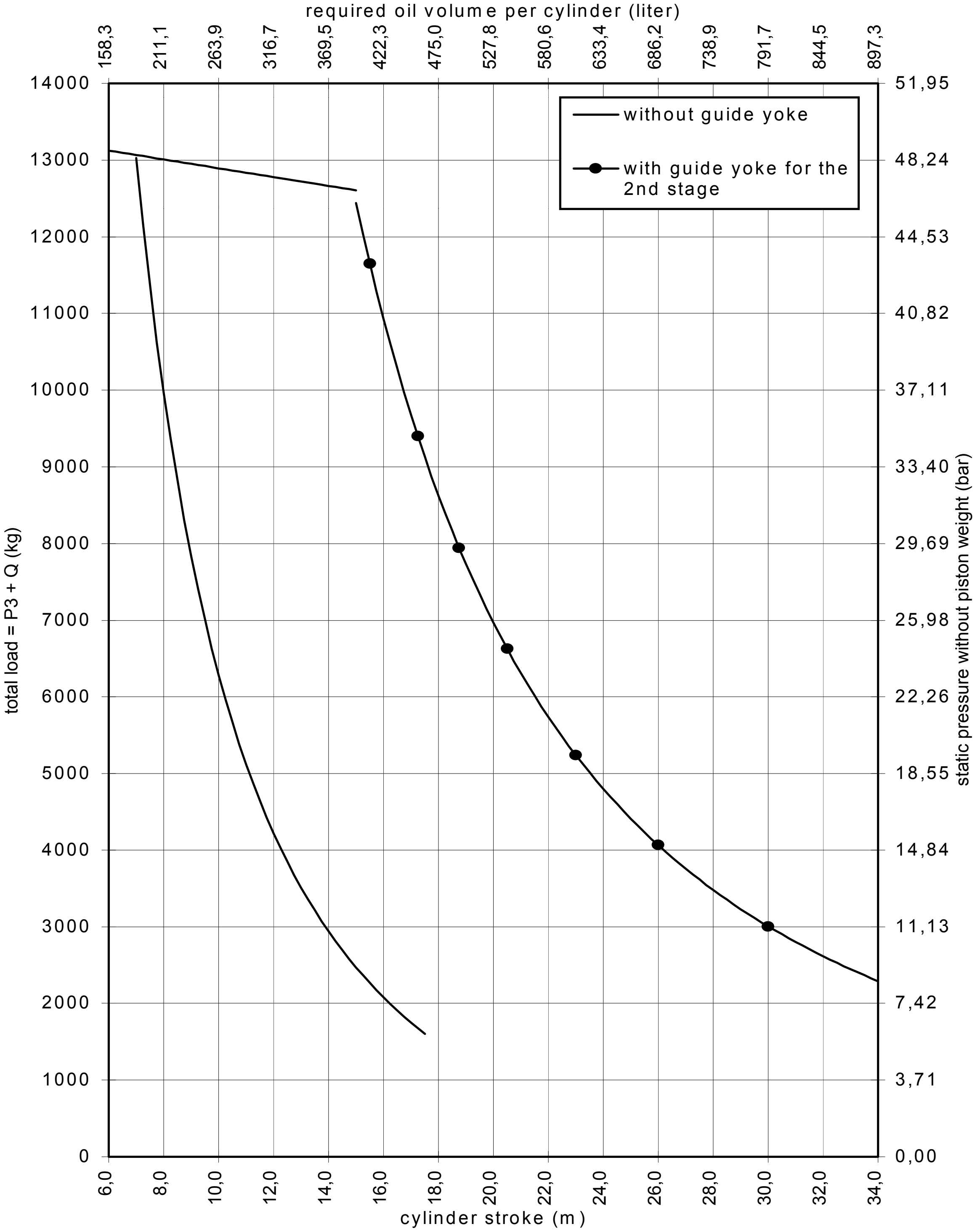
Selection diagram for Telescopic 3-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 100/3 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 50 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 100 / 140 / 200 (mm)	Factor of excess pressure = 1,4
reference area	A = 182,891 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 168,195 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	39,491 (kg) (per meter stroke)	z = number of cylinders

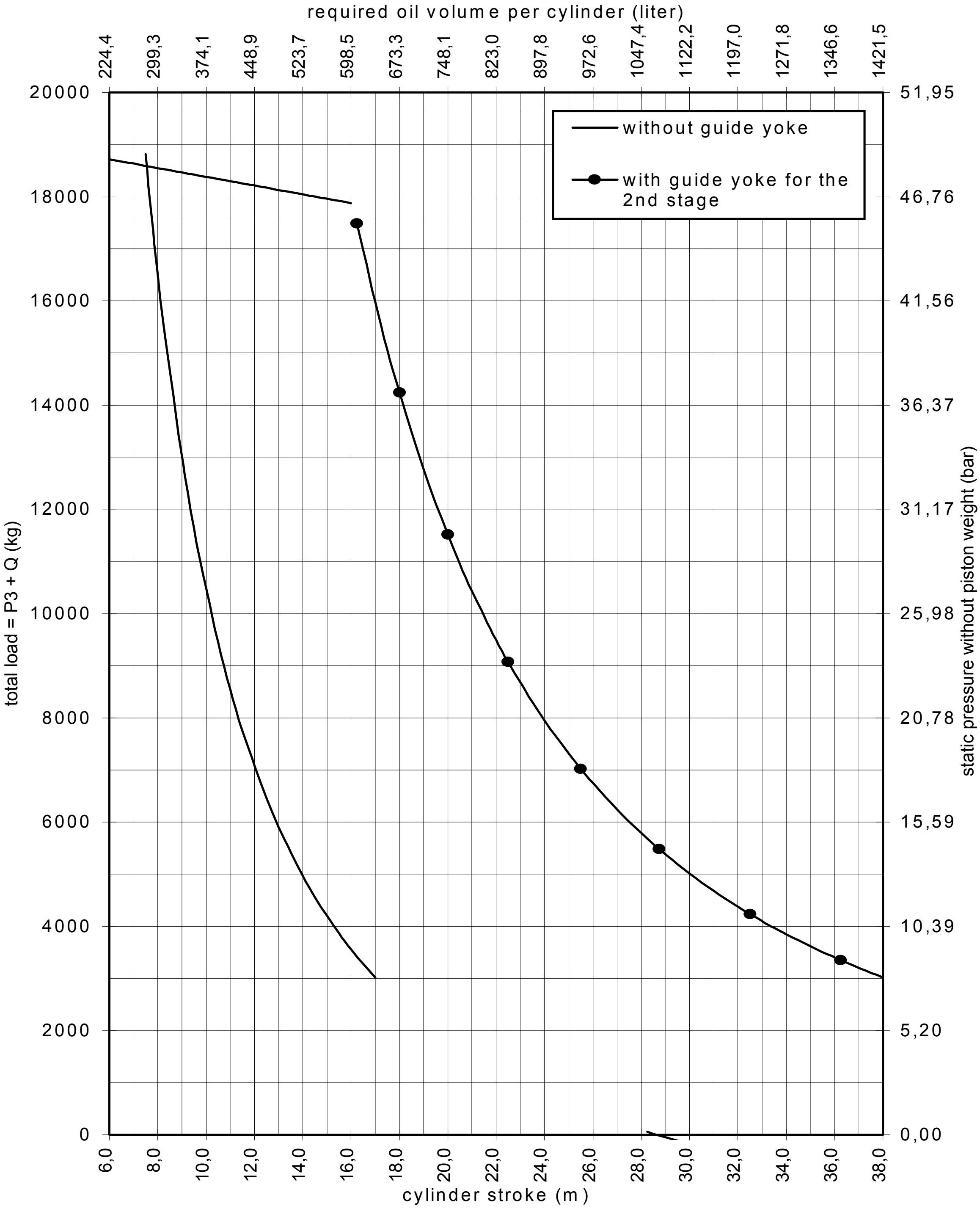
C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	Selection diagram for telescopic 3-stage cylinder - VT Series	emesso	S. A.	20/11/1998
		controllato		20/11/1998
		nullaosta		
Sost. il 2 PX 0275	DOCUMENTAZIONI TECNICHE	2 P X 0 2 7 5 a	pag 7	
Sost. da			di 9	

Selection diagram for Telescopic 3-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 120/3 - VT



Technical data :	$p_{stat} = 0{,}981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 51 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 120 / 170 / 240 (mm)	Factor of excess pressure = 1,4
reference area	A = 264,365 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 273,191 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	57,671 (kg) (per meter stroke)	z = number of cylinders

Selection diagram for Telescopic 3-stage Cylinder
Acc. to TRA 200 - Central Direct and Side Ram System
Type 3PL 140/3 - VT



Technical data :	$p_{stat} = 0,981 * \frac{P_3 + Q + m_p}{A + z}$ (bar)	
max static pressure	p = 51 (bar)	Factor of safety to buckling = 2,5
piston rod diameter	d_a = 140 / 200 / 290 (mm)	Factor of excess pressure = 1,4
reference area	A = 377,655 (cm^2)	Q = pay load (kg)
weight of piston	m_p = 411,824 (kg) (0 stroke) +	P_3 = weight of cabina (kg)
	83,981 (kg) (per meter stroke)	z = number of cylinders

VALVOLE DI SICUREZZA

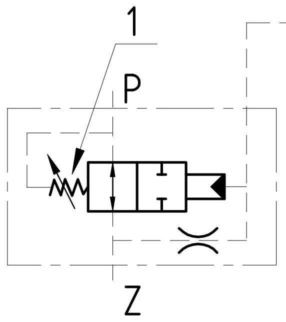
SAFETY VALVES

ROHRBRUCHSICHERUNGSVENTILE

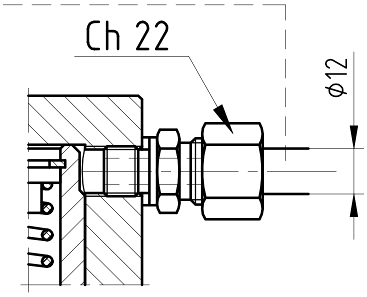
SOUPAPES DE SECURITE’

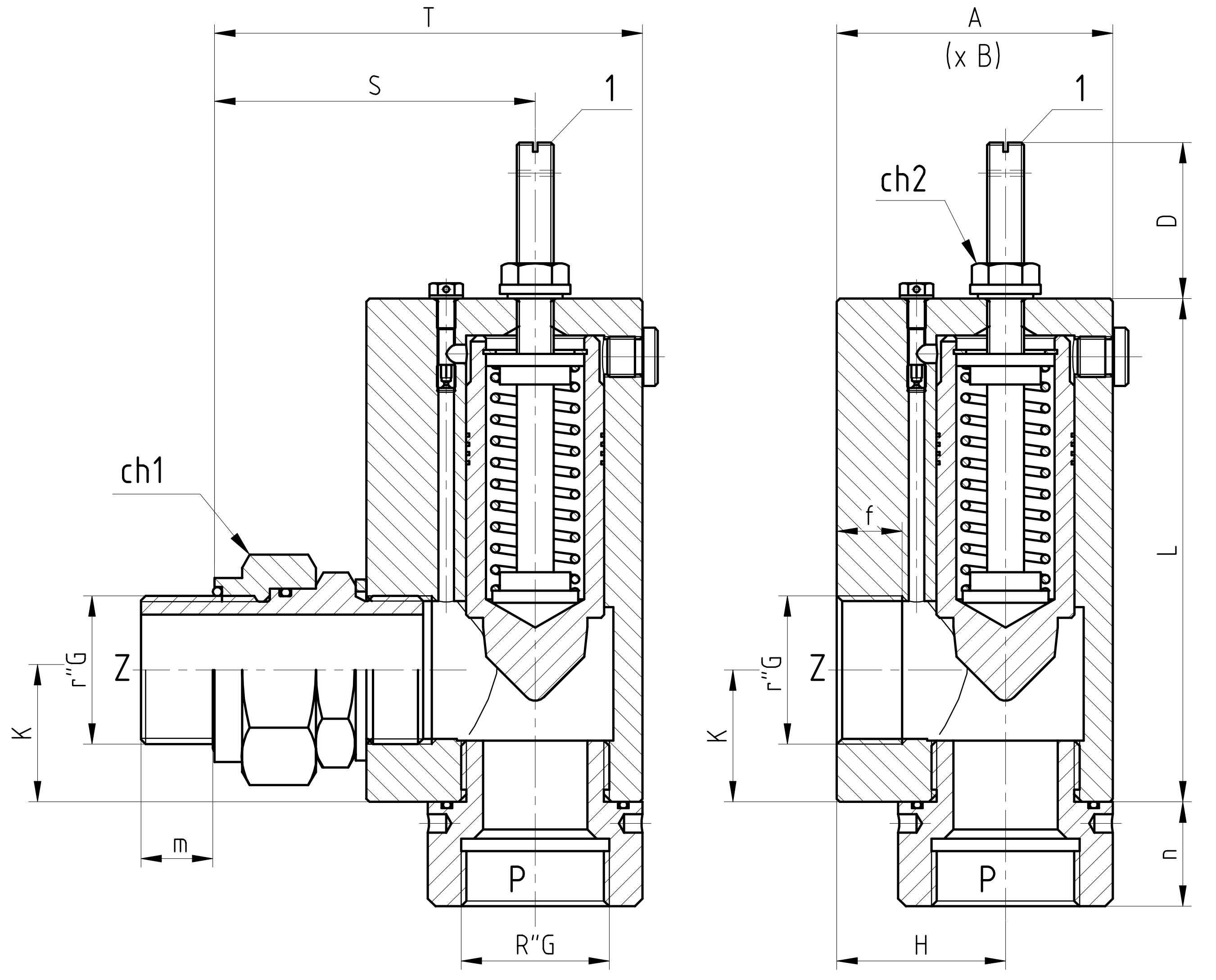
C.O.A.M. srl — via noalese sud 66 30030 Pianiga VE Tel +39041468966
info@coam—spa.com, www.coam—spa.com

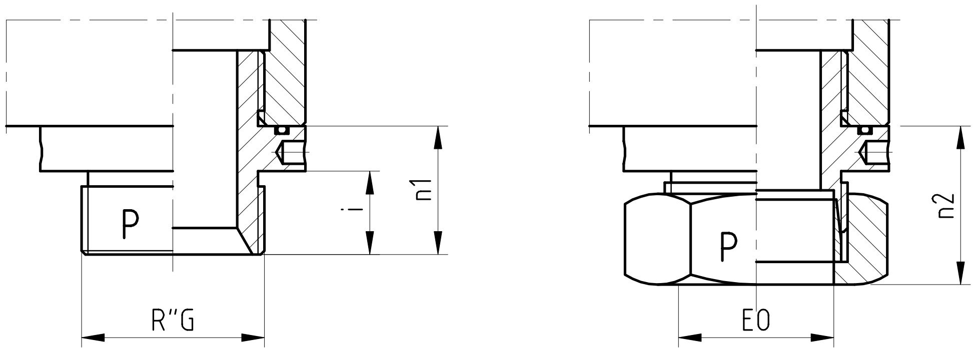
VALVOLE DI SICUREZZA
PIPE SAFETY VALVES FOR LIFTS
ROHRBRUCHVENTILE FUER AUFZUEGE
SOUPAPES DE SECURITE CONTRE RUPTURE DE CONDUIT



Attacco circuito di comando per impianti tandem
Control line connection
Anschluss fuer Doppelkolben
Connection pour conduite de commande pour double vérin







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VALVOLE DI SICUREZZA
PIPE SAFETY VALVES FOR LIFTS
ROHRBRUCHVENTILE FUER AUFZUEGE
SOUPAPES DE SECURITE CONTRE RUPTURE DE CONDUIT

r"G	R	EO	A	B	K	H	D	L	i	S	T	m	n	n1	n2	ch1	ch2	f
1"	3/4"		70	70	30	41.5	< 42	126	16	89	118	19	26	27	--	50	13	16
1"	1"		70	70	30	41.5	< 42	126	19	89	118	19	26	34	--	50	13	16
1"	1 1/4"		70	70	30	41.5	< 42	126	22	89	118	19	35	35	--	50	13	16
1"	1 1/2"		70	70	30	41.5	< 42	126	22	89	118	19	35	35	--	50	13	16
1"		35	70	70	30	41.5	< 42	126	--	89	118	19	--	--	43	50	13	16
1 1/2"	1 1/4"		90	70	43	55	< 51	164	22	107	142	22	35	35	--	65	19	22
1 1/2"	1 1/2"		90	70	43	55	< 51	164	22	107	142	22	35	35	--	65	19	22
1 1/2"	2"		90	70	43	55	< 51	164	26	107	142	22	42	42	--	65	19	22
1 1/2"		35	90	70	43	55	< 51	164	--	107	142	22	--	--	43	65	19	22
1 1/2"		42	90	70	43	55	< 51	164	--	107	142	22	--	--	45	65	19	22
2"	2"		110	90	53	65	< 63	200	26	128	173	26	42	42	--	80	19	23

Impianti con 1 valvola - Installations with 1 valve only
Anlage mit einem Rohrbruchsicherungsventil - Installation avec 1 soupape

RSG 55		
R" G	r" G	
	1" F	1" M
3/4" F	3 PV 0584	3 PV 0602
3/4" M	3 PV 0586	3 PV 0604
1" F	3 PV 0588	3 PV 0572
1" M	3 PV 0590	3 PV 0559
1 1/4" F	3 PV 0592	3 PV 0606
1 1/4" M	3 PV 0594	3 PV 0608
1 1/2" F	3 PV 0596	3 PV 0610
1 1/2" M	3 PV 0598	3 PV 0612
EO 35	3 PV 0600	3 PV 0614

RSG 70		
R" G	r" G	
	1 1/2" F	1 1/2" M
1 1/4" F	3 PV 0616	3 PV 0632
1 1/4" M	3 PV 0618	3 PV 0570
1 1/2" F	3 PV 0620	3 PV 0568
1 1/2" M	3 PV 0622	3 PV 0555
2" F	3 PV 0624	3 PV 0634
2" M	3 PV 0626	3 PV 0636
EO 35	3 PV 0628	3 PV 0638
EO 42	3 PV 0630	3 PV 0640

RSG 90		
R" G	r" G	
	2" F	2" M
2" F	3 PV 0642	3 PV 0566
2" M	3 PV 0644	3 PV 0550

Impianti con 2 o più valvole - Installations with 2 or more valves
Anlage mit zwei oder mehreren Rohrbruchsicherungsventil - Installation avec 2 o plusieres soupapes

RSG 55		
R" G	r" G	
	1" F	1" M
3/4" F	3 PV 0585	3 PV 0603
3/4" M	3 PV 0587	3 PV 0605
1" F	3 PV 0589	3 PV 0573
1" M	3 PV 0591	3 PV 0560
1 1/4" F	3 PV 0593	3 PV 0607
1 1/4" M	3 PV 0595	3 PV 0609
1 1/2" F	3 PV 0597	3 PV 0611
1 1/2" M	3 PV 0599	3 PV 0613
EO 35	3 PV 0601	3 PV 0615

RSG 70		
R" G	r" G	
	1 1/2" F	1 1/2" M
1 1/4" F	3 PV 0617	3 PV 0633
1 1/4" M	3 PV 0619	3 PV 0571
1 1/2" F	3 PV 0621	3 PV 0569
1 1/2" M	3 PV 0623	3 PV 0556
2" F	3 PV 0625	3 PV 0635
2" M	3 PV 0627	3 PV 0637
EO 35	3 PV 0629	3 PV 0639
EO 42	3 PV 0631	3 PV 0641

RSG 90		
R" G	r" G	
	2" F	2" M
2" F	3 PV 0643	3 PV 0567
2" M	3 PV 0645	3 PV 0551

CENTRALINE IDRAULICHE

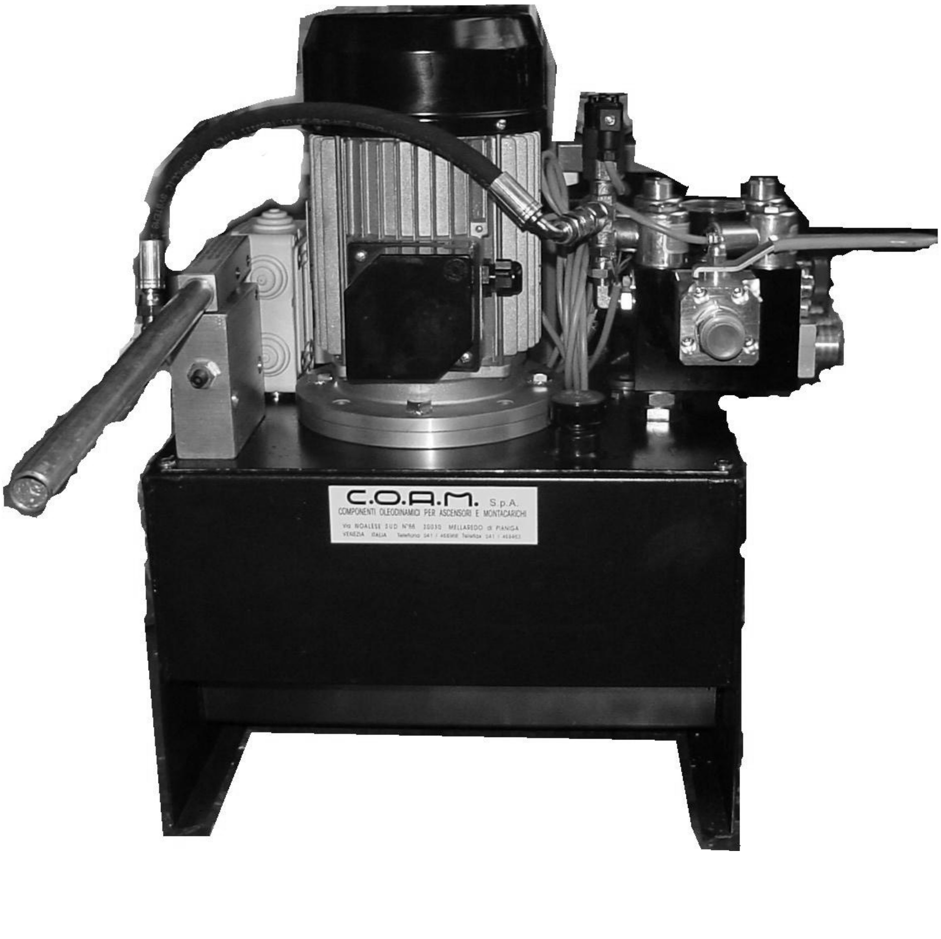
POWER UNITS

AGGREGATE

CENTRALE HYDRAULIQUE

Mini Power Unit PU 50

The mini power unit pu 50 is intended to fit in all the installation with little load and/or little speed.
It was developed especially for small lift up to 350 kg rated load. It has anyway found many other application as it is an extremely versatile power unit.



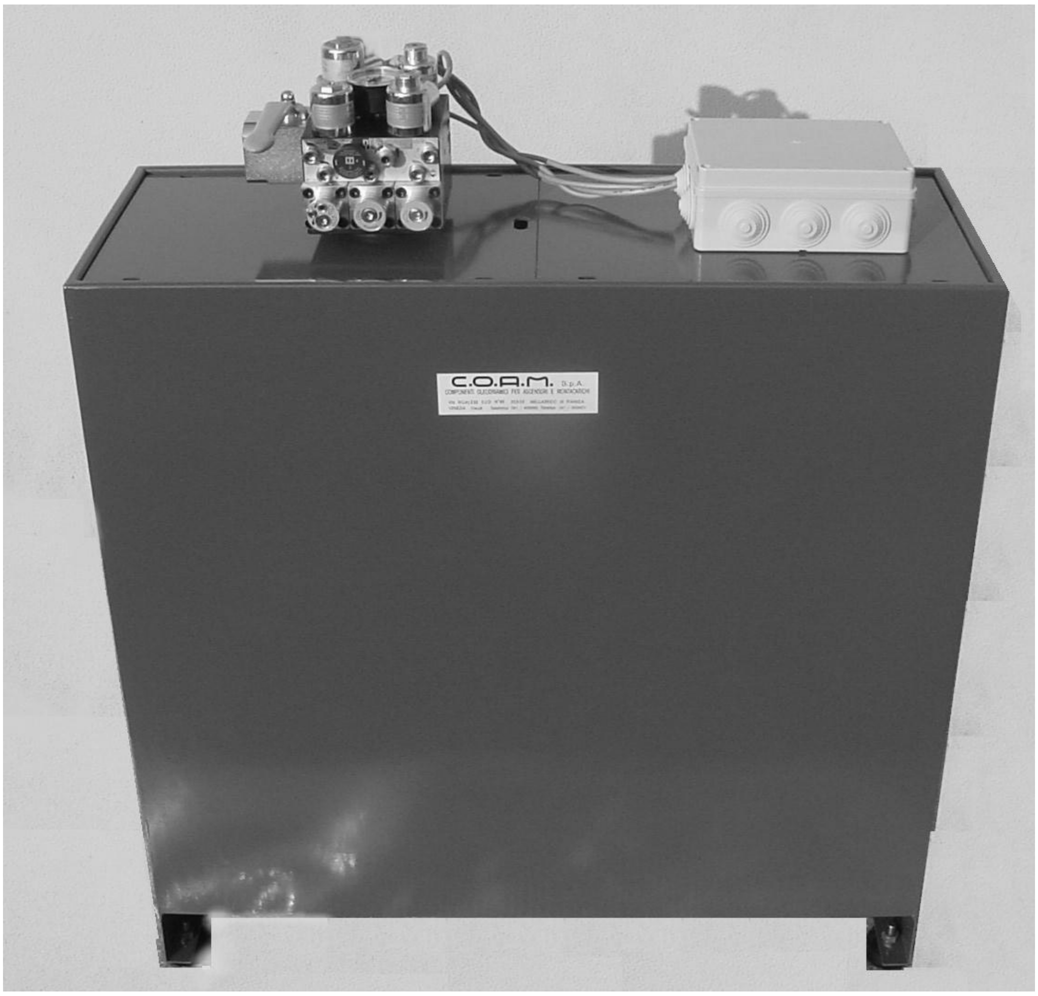
Quantity of oil usable :	up to 30 l
Valve available:	1 to 4 speed Blain
Motors available :	up to 4 kW
Pumps available:	up to 23 l/min

C.O.A.M.

RINA QUACER
ISO 9001

Mini Power Unit PU 100

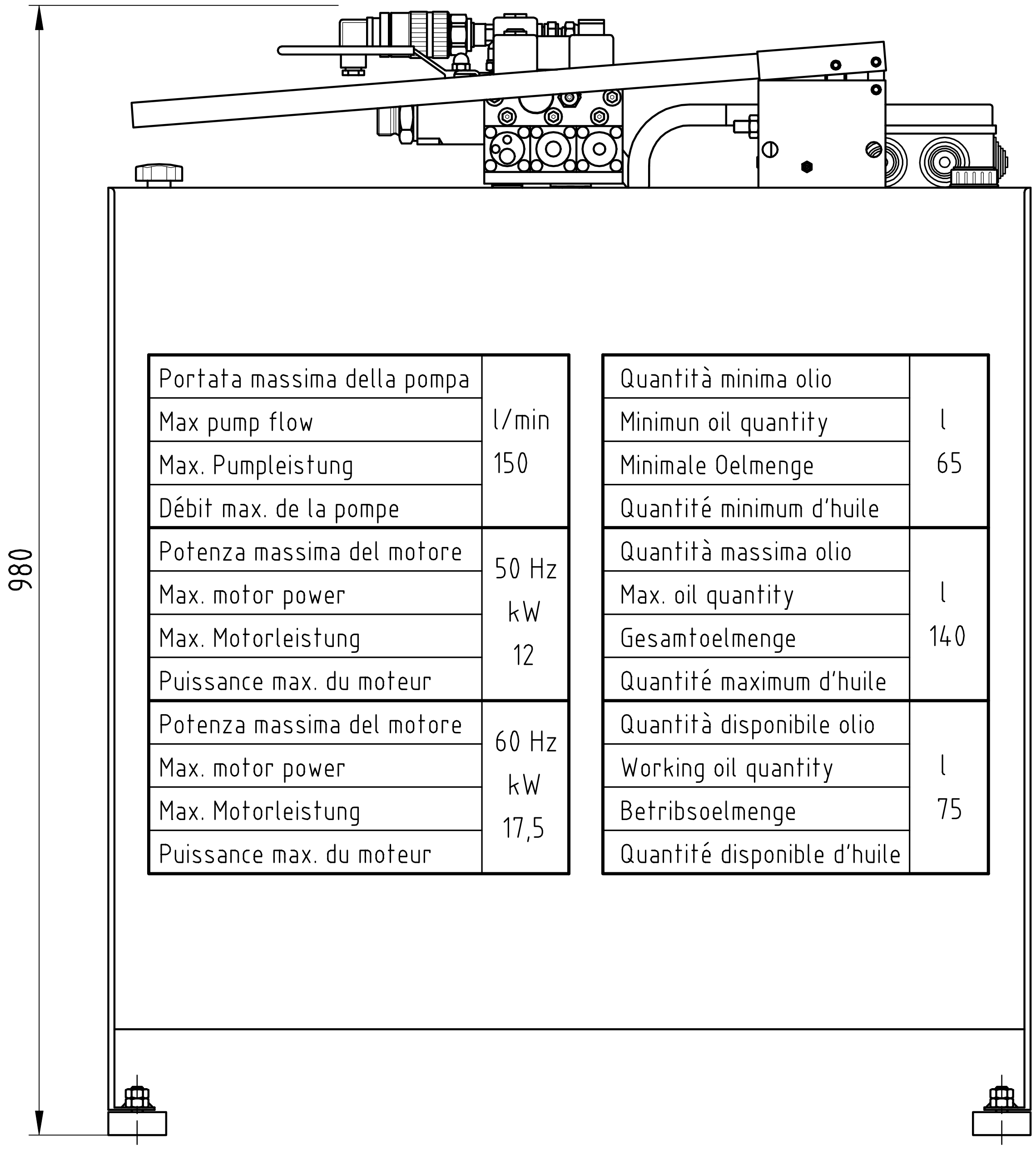
The mini power unit pu100 is intended to fit in all the installation with little load and/or little speed.
It is especially developed especially for small lift up to 630 kg rated load



Quantity of oil usable :	up to 60 l
Valve available:	1 to 4 speed Blain
Motors available :	up to 12 kW
Pumps available:	up to 150 l/min

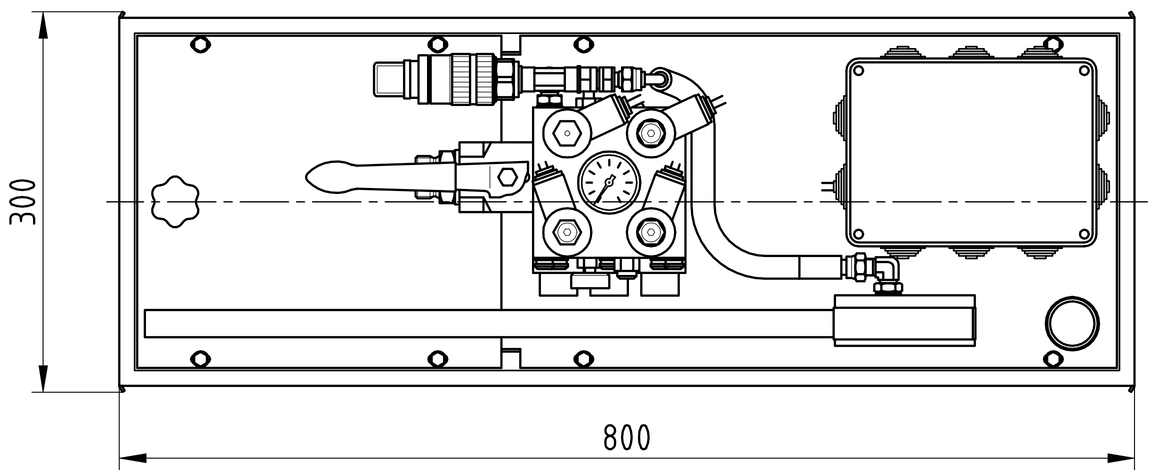
C.O.A.M.

CISQ
RINA QUACER
ISO 9001



Portata massima della pompa / Max pump flow / Max. Pumpleistung / Débit max. de la pompe	l/min 150
Potenza massima del motore / Max. motor power / Max. Motorleistung / Puissance max. du moteur	50 Hz kW 12
Potenza massima del motore / Max. motor power / Max. Motorleistung / Puissance max. du moteur	60 Hz kW 17,5

Quantità minima olio / Minimun oil quantity / Minimale Oelmenge / Quantité minimum d'huile	l 65
Quantità massima olio / Max. oil quantity / Gesamtoelmenge / Quantité maximum d'huile	l 140
Quantità disponibile olio / Working oil quantity / Betribsoelmenge / Quantité disponible d'huile	l 75



Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous réserve de modification

I GB D F

COAM
COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI

DIMENSIONI DELLE CENTRALINE TIPO PU 100
DIMENSIONS OF THE PUMP UNITS TYPE PU 100
MASS DES AGGREGATS TYP PU 100
DIMENSIONS DE LA CENTRALES TYPE PU 100

Disegnato	Paolo G.	08-11-2005
Controllato		
Nullaosta		

Sost. il	
Sost. dal	

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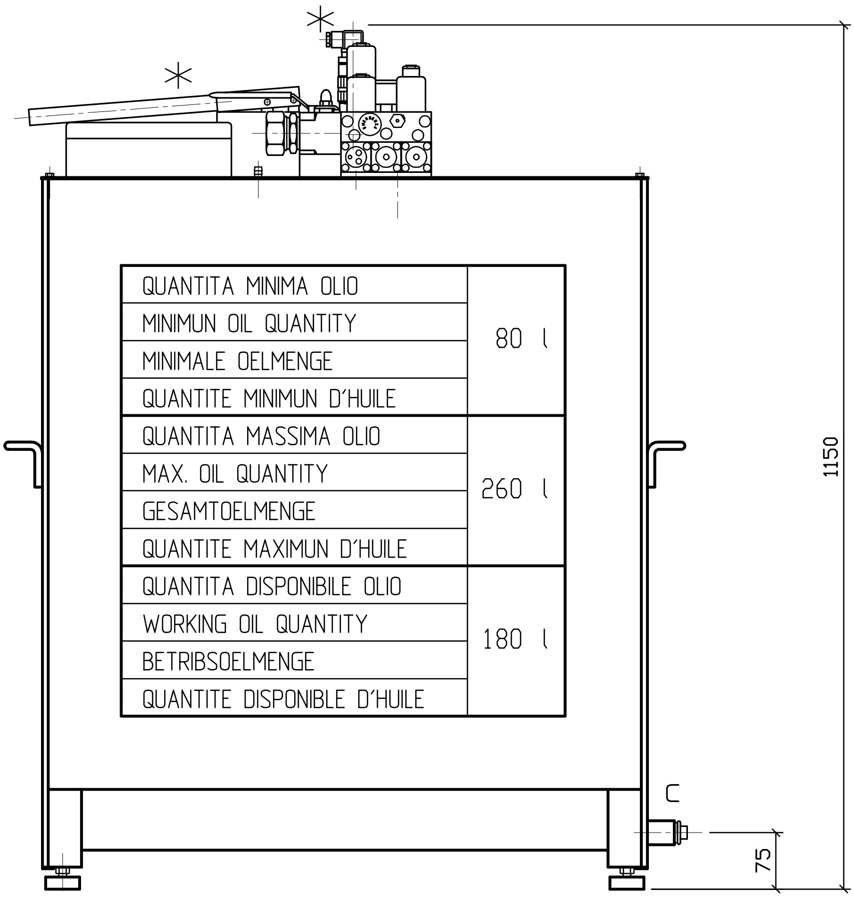
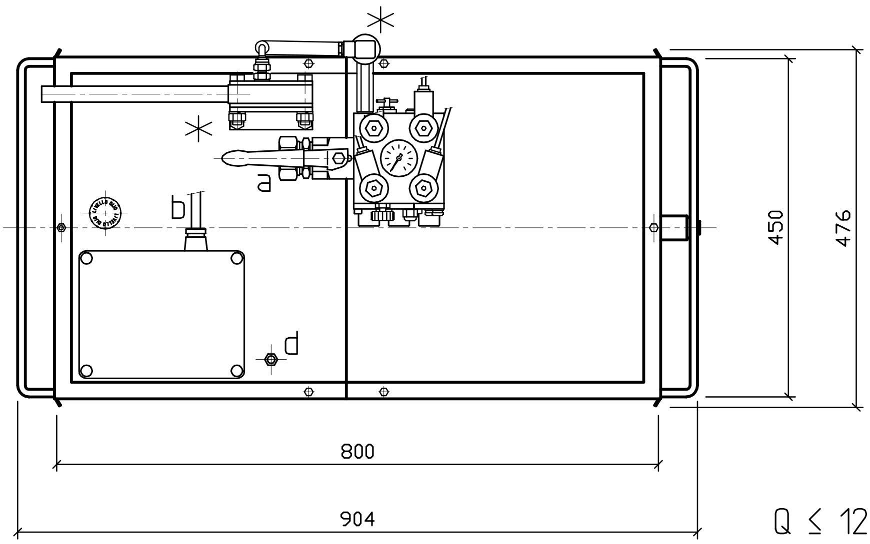


QUANTITA MINIMA OLIO MINIMUN OIL QUANTITY MINIMALE OELMENGE QUANTITE MINIMUN D'HUILE	80 l
QUANTITA MASSIMA OLIO MAX. OIL QUANTITY GESAMTOELMENGE QUANTITE MAXIMUN D'HUILE	260 l
QUANTITA DISPONIBILE OLIO WORKING OIL QUANTITY BETRIBSOELMENGE QUANTITE DISPONIBLE D'HUILE	180 l



Q ≤ 125 l/min

*
POMPA A MANO E PRESSOSTATO SOLO SE RICHIESTI O NECESSARI / MANUAL PUMP AND PRESSURE SWITCH AS OPTIONAL OR IF REQUIRED
HANDPUMPE UND DRUCKSCHALTER WENN VERLANGT ODER NOETIG / POMPE MANUELLE ET PRESSOSTAT SI DEMANDES OU SI NECESSAIRES

a	ATTACCO PER LA TUBAZIONE CONNECTION FOR PIPE ANSCHLUSS FUER OELLEITUNG RACCORD POUR LE CIRCUIT EXTERIEUR
b	FORO PER PASS. CAVI D'ALIMENTAZIONE HOLE FOR PASSING ELECTRIC CABLE EINFUEHRUNGSOEFFNUNG FUER DIE ELEKTRSCHEN KAEBEL TROU POUR LE PASSAGE DES CABLES D'ALIMENTATION

c	SCARICO OLIO OIL DRAIN OELAUSFLUSS DECHARGE HUIL
d	ATTACCO RECUPERO OLIO DI PERDITA CONNECTION TO RECOVER LEAKING OIL VERBINDUNG FUER DIEWIEDERGEWINNUNG DES LECKOELS ATTAQUE PUOR LA RECUPERATION DE L'HUILE PERTES

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C.O.A.M. S.p.A. COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	DIMENSIONI DELLE CENTRALINE TIPO NBA DIMENSIONS OF THE POWER PACK TYPE NBA MASS DES AGGREGATS TYP NBA DIMENSIONS DE LA CENTRALES TYPE NBA	Disegnato	Paolo G.	13-09-1995	
		Controllato			
		Nullaosta			
Sost. il Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X	0 2 3 5	a	Pag. 1 di 2

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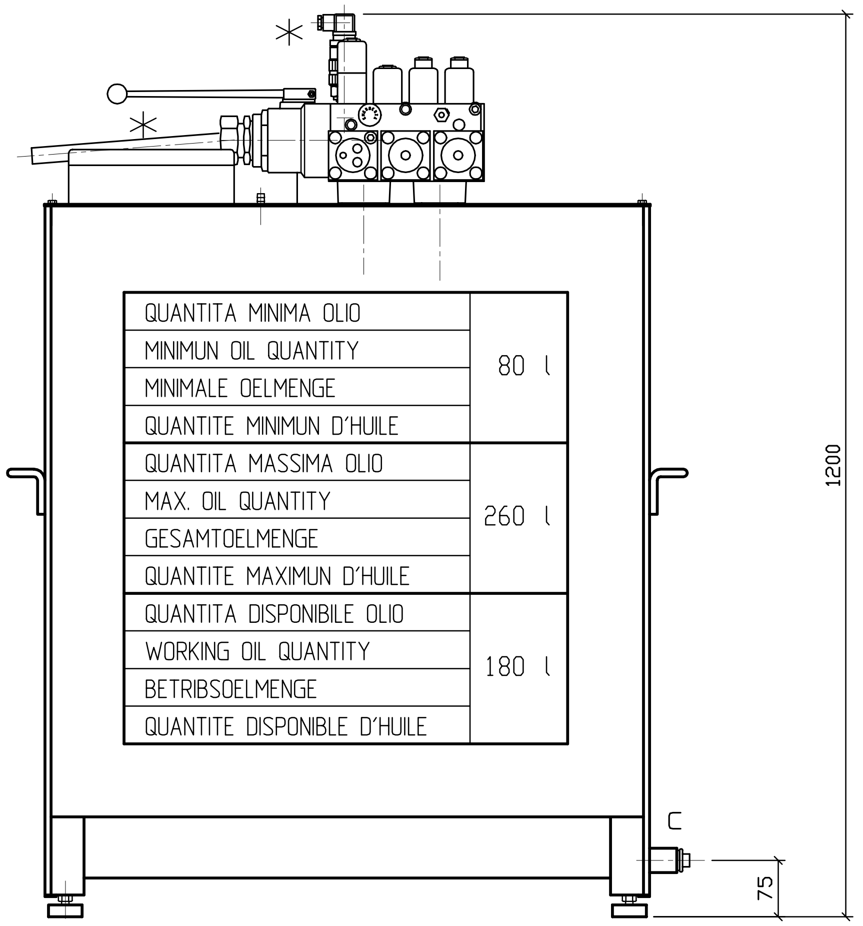
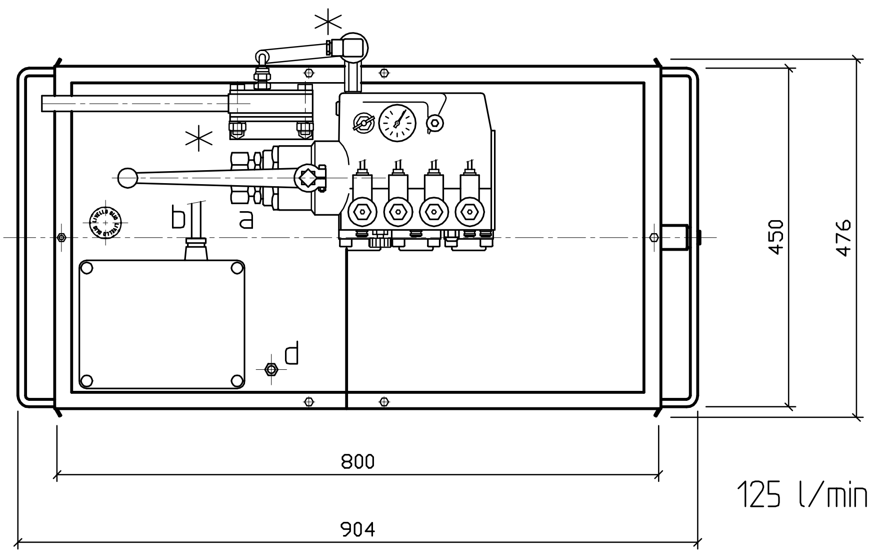


QUANTITA MINIMA OLIO MINIMUN OIL QUANTITY MINIMALE OELMENGE QUANTITE MINIMUN D'HUILE	80 l
QUANTITA MASSIMA OLIO MAX. OIL QUANTITY GESAMTOELMENGE QUANTITE MAXIMUN D'HUILE	260 l
QUANTITA DISPONIBILE OLIO WORKING OIL QUANTITY BETRIBSOELMENGE QUANTITE DISPONIBLE D'HUILE	180 l



125 l/min ≤ Q ≤ 210 l/min

*

POMPA A MANO E PRESSOSTATO SOLO SE RICHIESTI O NECESSARI / MANUAL PUMP AND PRESSURE SWITCH AS OPTIONAL OR IF REQUIRED
HANDPUMPE UND DRUCKSCHALTER WENN VERLANGT ODER NOETIG / POMPE MANUELLE ET PRESSOSTAT SI DEMANDES OU SI NECESSAIRES

a	ATTACCO PER LA TUBAZIONE CONNECTION FOR PIPE ANSCHLUSS FUER OELLEITUNG RACCORD POUR LE CIRCUIT EXTERIEUR
b	FORO PER PASS. CAVI D'ALIMENTAZIONE HOLE FOR PASSING ELECTRIC CABLE EINFUEHRUNGSOEFFNUNG FUER DIE ELEKTRSCHEN KAEBEL TROU POUR LE PASSAGE DES CABLES D'ALIMENTATION

c	SCARICO OLIO OIL DRAIN OELAUSFLUSS DECHARGE HUIL
d	ATTACCO RECUPERO OLIO DI PERDITA CONNECTION TO RECOVER LEAKING OIL VERBINDUNG FUER DIEWIEDERGEWINNUNG DES LECKOELS ATTAQUE PUOR LA RECUPERATION DE L'HUILE PERTES

Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous r?serve de modification / a) mod. 0085 21/11/96 ROV

I GB D F

C.O.A.M. S.p.A.
COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI

DIMENSIONI DELLE CENTRALINE TIPO NBA
DIMENSIONS OF THE POWER PACK TYPE NBA
MASS DES AGGREGATS TYP NBA
DIMENSIONS DE LA CENTRALES TYPE NBA

Disegnato	Paolo G.	13-09-1995
Controllato		
Nullaosta		

Sost. il
Sost. dal

DOCUMENTAZIONI TECNICHE 2 P X 0 2 3 5 a

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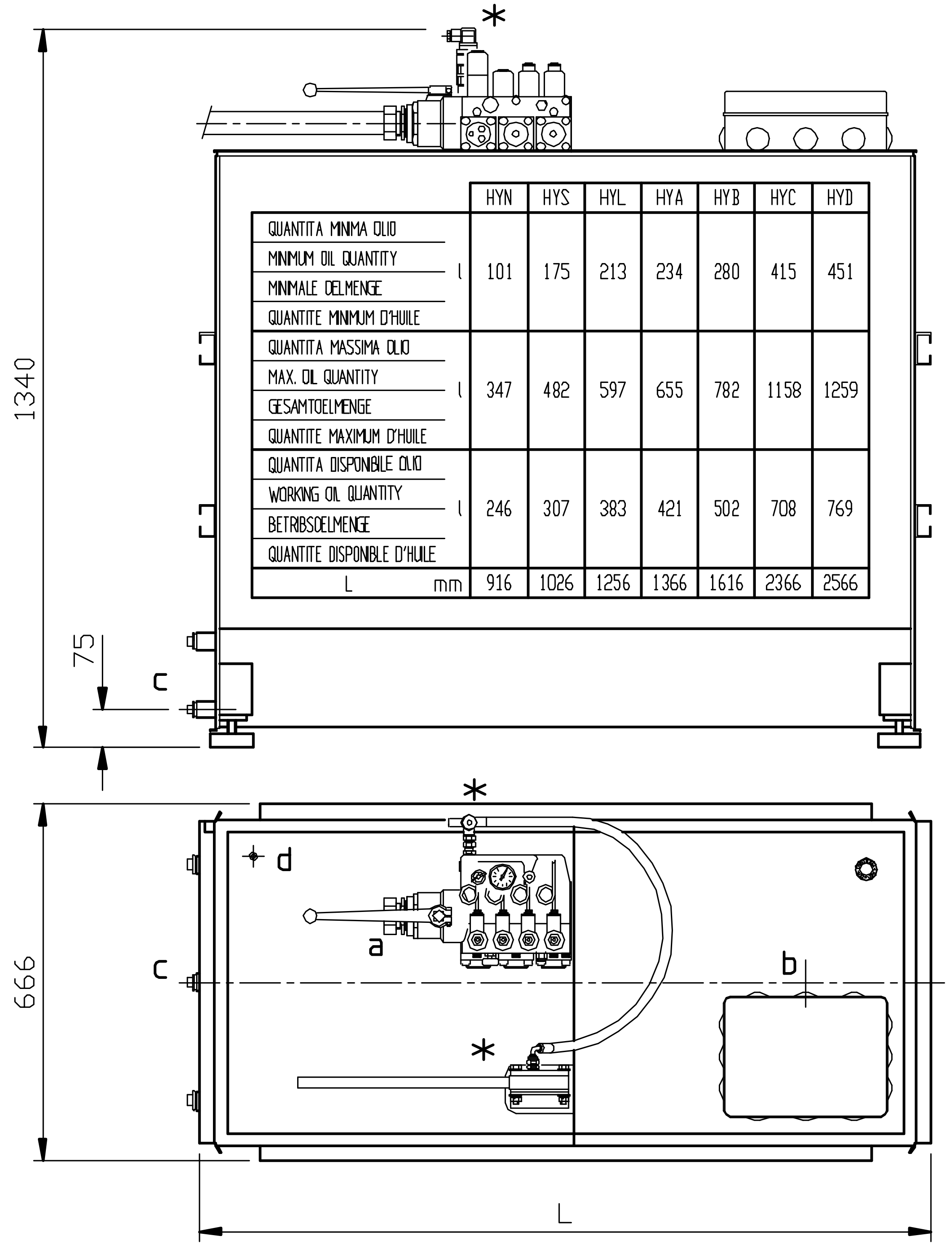
Con riserva di modifica / Subject to change / Aenderungen vorbehalten / Sous r?serve de modification



		HYN	HYS	HYL	HYA	HYB	HYC	HYD
QUANTITA MINIMA OLIO / MINIMUM OIL QUANTITY / MINIMALE OELMENGE / QUANTITE MINIMUM D'HUILE	l	101	175	213	234	280	415	451
QUANTITA MASSIMA OLIO / MAX. OIL QUANTITY / GESAMTOELMENGE / QUANTITE MAXIMUM D'HUILE	l	347	482	597	655	782	1158	1259
QUANTITA DISPONIBILE OLIO / WORKING OIL QUANTITY / BETRIBSOELMENGE / QUANTITE DISPONIBLE D'HUILE	l	246	307	383	421	502	708	769
L	mm	916	1026	1256	1366	1616	2366	2566

* POMPA A MANO E PRESSOSTATO SOLO SE RICHIESTI O NECESSARI / MANUAL PUMP AND PRESSURE SWITCH AS OPTIONAL OR IF REQUIRED
HANDPUMPE UND DRUCKSCHALTER WENN VERLANGT ODER NOETIG / POMPE MANUELLE ET PRESSOSTAT SI DEMANDES OU SI NECESSAIRES

a	ATTACCO PER LA TUBAZIONE CONNECTION FOR PIPE ANSCHLUSS FUER OELLEITUNG RACCORD POUR LE CIRCUIT EXTERIEUR	c	SCARICO OLIO OIL DRAIN OELAUSFLUSS DECHARGE HUIL
b	FORO PER PASS. CAVI D'ALIMENTAZIONE HOLE FOR PASSING ELECTRIC CABLE EINFUEHRUNGSOEFFNUNG FUER DIE ELEKTRSCHEN KAEBEL TROU POUR LE PASSAGE DES CABLES D'ALIMENTATION	d	ATTACCO RECUPERO OLIO DI PERDITA CONNECTION TO RECOVER LEAKING OIL VERBINDUNG FUER DIEWIEDERGEWINNUNG DES LECKOELS ATTAQUE PUOR LA RECUPERATION DE L'HUILE PERTES

I GB D F

C.O.A.M. S.pA COMPONENTI OLEODINAMICI PER ASCENSORI E MONTACARICHI	DIMENSIONI DELLE CENTRALINE TIPO HY_ CON BLOCCO VALVOLE ESTERNO DIMENSIONS OF THE POWER PACK TYPE HY_ WITH EXTERNAL VALVE BLOCK MASS DES AGGREGATS TYP HY_ MIT AUSSERER VENTILSTEUERBLOCK DIMENSIONS DE LA CENTRALES TYPE HY_ AVEC BLOC SOUPAPE EXTERIEUR	Disegnato R.O.V. 13-09-1995 Controllato Nullaosta	
Sost. il Sost. dal	DOCUMENTAZIONI TECNICHE	2 P X 0 2 5 4 -	Pag. 1 di 1

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Tabella per la selezione delle centrali oleodinamiche

Table for the selection of pump units

Tabelle für die Auswahl der Aggregate

Tableau de sélection des pompes

Vasca Tank type Aggregat Behälter Type de conteneur	Portata della pompa Pump flow Fördermenge Débit de la pompe	Potenza nom del motore nom. motor power Nennmotorleistung Puissance du moteur		Quantità disponibile di olio Working oil quantity Betriebsölmenge Pumpleistrung Quantité disponible d'huile
	1/min	50Hz kW	60Hz kW	Lit.
PU 100	150	16	18,5	75
NBA	180	29	37	180
HYN	180	29	37	246
HYS	380	60	72	307
HYL	500	77	92	383
HYA	800	77	92	421
HYB	800	77	92	502
HYC	800	77	92	708
HYD	800	77	92	769

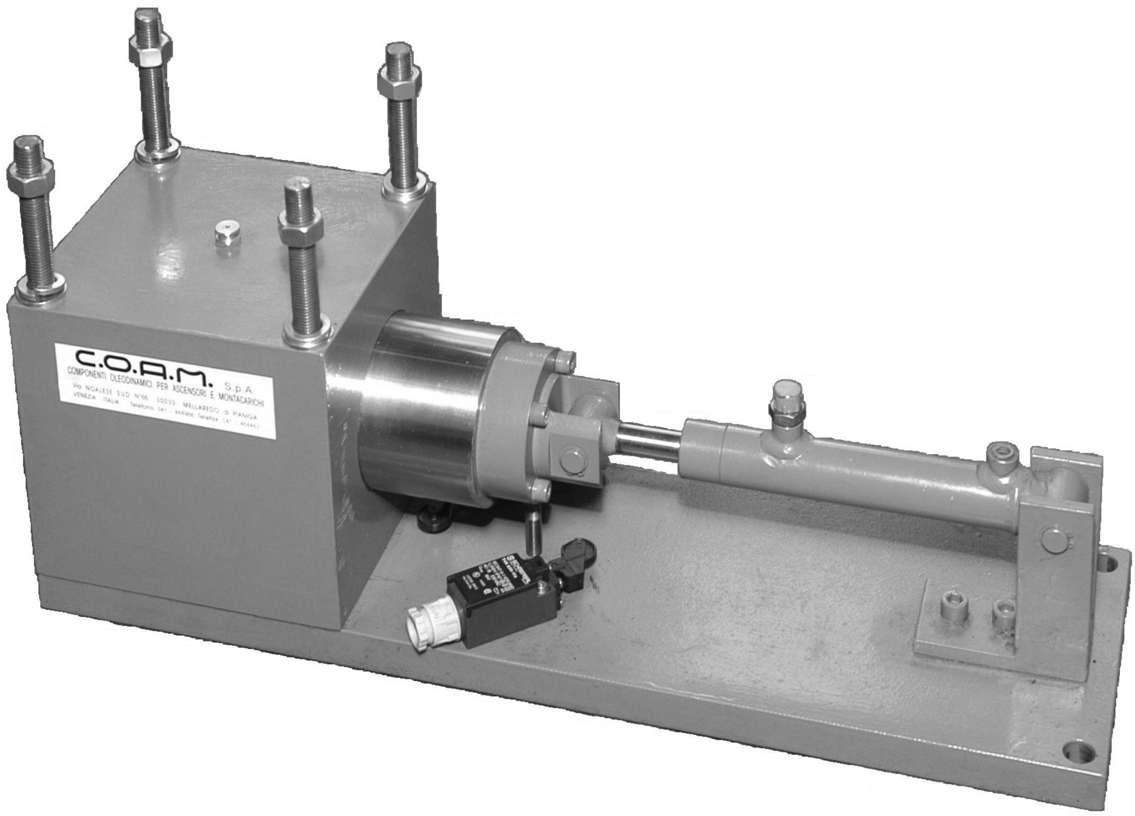
APPARECCHIO DI BLOCCAGGIO

PIN DEVICE

VERRIEGELUNGSEINRICHTUNG

DISPOSITIF DE BLOCAGE

PIN DEVICE



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APPARECCHIO DI BLOCCAGGIO CONTRO L'ABBASSAMENTO DELLA CABINA

Questo apparecchio trova la sua applicazione nei casi di carichi pesanti e concentrati. Quando si entra con un camion o un muletto, la cabina si abbassa e crea un pericoloso dislivello con il pavimento.

Grazie all'utilizzo dell'apparecchio di bloccaggio, la cabina appoggia su delle staffe fissate al muro. L'abbassamento viene così eliminato.

L'apparecchio di bloccaggio è una valida integrazione per il dispositivo antideriva, perché quest'ultimo interviene quando la cabina si è già abbassata e l'operazione richiede un certo tempo.

L'apparecchio di bloccaggio riduce efficacemente le sollecitazioni a guide e arcata durante le operazioni di carico e scarico.

NOTA BENE: l'apparecchio di bloccaggio non è un dispositivo di sicurezza e non sostituisce il dispositivo a tacchetti (EN 81.2 punto 9.11) né il dispositivo antideriva (EN 81.2 punto 14.2.1.5).

PIN DEVICE

This device finds application in the case of heavy and concentrated loads into the car. When a truck or a fork lift go into the car, this one sinks and a dangerous drop with the floor level is produced.

Thanks to the pin device, the car rests on the seatings fixed to the shaft wall and the drop between car and floor level evens out.

The pin device is a valid integration to the re-levelling systems (EN 81.2 section 14.2.1.5) as the latter are activated when the car has already sunk, which requires a certain time.

The pin device reduces effectively any stress to guide rails and car frame during loading and unloading operations.

PLEASE NOTE: The pin device is not a safety device and does not replace either pawl devices (EN 81.2 section 9.11) or re-levelling systems (EN 81.2 section 14.2.1.5).

VERRIEGELUNGSVORRICHTUNG

Man kann dieser Apparat verwenden mit Anlagen wo eine schwere und konzentrierte Last in der Kabine beladen ist. Wenn ein LKW oder ein Gabelstapler in der Kabine hineinfahren, die Kabine sinkt und eine gefährliche Höheunterschied mit dem Füssboden auftritt.

Dank der Verriegelungsvorrichtung, die Kabine liegt auf die Stütze die auf der Schaftwand befestigt sind und sich mit dem Füssboden einebnet.

Die Verriegelungsvorrichtung eine wirksam Ergänzung an dem Nachstellungssystem (EN 81.2 Abschnitt 14.2.1.5) ist. Der Nachstellungssystem wird activiert als die Kabine schon gesenkt ist und eine länger Nievellierungszeit nötig wird.

Die Verriegelungsvorrichtung wirksam vermindert die Führungsschienen- und Kabinenrahmenbeanspruchung während Beladung- und Abladungsoperationen.

ACHTUNG! Die Verriegelungsvorrichtung ist kein Sichereitsgerät und kann weder die Aufsetzvorrichtung (EN 81.2 Abschnitt 9.11) noch die Nachstellungssystem (EN 81.2 Abschnitt 14.2.1.5) ersetzen.

DISPOSITIF DE BLOCAGE CONTRE L'ABAISSEMENT DE LA CABINE

Cet dispositif trouve application en cas de charges lourds et concentré. Comme on entre dans la cabine avec un camion ou un chariot élévateur, elle se baisse et crée un dangereux différence de niveau avec le plancher.

Grâce à l'emploi du dispositif de blocage, la cabine se place sur de soutiens que sont fixé au mur. L'abaissement de cette façon est eliminé.

Le dispositif de blocage est une efficace complètement pour le dispositif de nivelage, puisque celui-ci est activé quand la cabine est déjà abaissé et l'opération demande un certain temps.

Le dispositif de blocage réduit efficacement les sollicitations aux guides et au bâti pendant les operations de la cargaison et du déchargement de la cabine.

ATTENTION: le dispositif de blocage n' est pas un dispositif de sûreté et il ne remplace pas ni le dispositif a taquet (EN 81.2 paragraphe 9.11) ni le dispositif de nivelage (EN 81.2 paragraph 14.2.1.5.).

CICLO DI FUNZIONAMENTO PER APPARECCHIO DI BLOCCAGGIO

NOTA BENE: l'apparecchio di bloccaggio non è un dispositivo di sicurezza e non sostituisce il dispositivo a tacchetti (EN 81.2 punto 9.11) né il dispositivo antideriva (EN 81.2 punto 14.2.1.5).

Vi sono due micro-interruttori installati sui sistemi di bloccaggio al piano. Essi segnalano lo stato di apertura e di chiusura dei pistoni.

1. La cabina è al piano più basso con i pin estesi e appoggiati ai blocchi meccanici. Se la pressione dell'olio scende sotto una soglia minima prefissata controllata da un pressostato, il sistema di livellamento parte e si ferma quando il pressostato stacca.

2. Quando una corsa in salita è richiesta da una chiamata, la cabina si muove in salita in velocità di livellamento per circa 20 mm (distanza modificabile mediante i magneti regolabili nel vano), poi i pin si ritirano. Solo dopo che i pistoni saranno completamente ritirati, la cabina comincerà a muoversi verso l'alto in grande velocità.

3. Quando la cabina raggiunge il piano, si ferma 20 mm sopra il livello del piano: i pin si estendono; quando i pin sono completamente estesi, la cabina si muove in discesa in velocità di livellamento finché i pin appoggiano. La valvola di discesa viene chiusa quando un pressostato di minima pressione interviene. A questo punto le porte si possono aprire (anche in questo caso, se la pressione dell'olio scende sotto una soglia minima prefissata, controllata da un pressostato, il sistema di livellamento si aziona e si ferma quando il pressostato stacca).

4. Se c'è una chiamata per una corsa in discesa, la cabina si muove in salita con velocità di livellamento per circa 20 mm, poi i pin si possono ritirare. Quando i microinterruttori degli apparecchi (pin) danno il consenso, la cabina parte in discesa in grande velocità.

5. Raggiunto il piano inferiore, dopo il rallentamento, la cabina si ferma 20 mm sopra il livello del piano: i pin si estendono, poi la cabina può scendere fino ad appoggiarsi sui blocchi. A questo punto la porta si potrà aprire.

6. Durante lo stazionamento al piano, se la pressione dell'olio scende sotto una soglia minima prefissata controllata da un apposito pressostato, il sistema di livellamento entra in funzione e si ferma quando il pressostato stacca. La regolazione di questo pressostato deve essere tale da impedire il distacco dei pistoni dall'arcata ma non deve neppure sollevare la cabina vuota.

7. In modalità ispezione i pin devono rimanere chiusi (non estesi) per tutto il tempo e possono venire estesi e ritratti solo manualmente dal tetto della cabina e solo se questa è ferma. Dato che in questo caso non è possibile sapere a quale livello si trovi la cabina, la quale potrebbe trovarsi in mezzo a due piani, la persona sul tetto della cabina avrà cura di muoverla solo coi pin ritratti. Un segnale luminoso posto sul tetto della cabina ci informerà sulla posizione dei pin.

8. Quando i pin sono in movimento la porta non può aprirsi e anche l'apertura anticipata della porta sarà disabilitata.

9. Se i pin non riescono ad estendersi od a chiudersi completamente dopo un certo periodo di tempo regolato da un timer la pompa del pin device viene arrestata e si attiva nel quadro elettrico un ciclo di emergenza.

10. la valvola di comando deve avere per legge un dispositivo di discesa a mano. Tale comando non deve mai far distaccare i pistoni dall'arcata. (Serve il dispositivo l'anti-allentamento funi come negli impianti in taglia).

Un esempio dello schema elettrico di funzionamento è presentato di seguito.

La logica di funzionamento descritta sopra deve essere programmata nel quadro elettrico.

OPERATION CYCLE FOR PIN DEVICE

Important: **the pin device is not a safety device and does not substitute the devices considered at point 9.11 and 14.2.1.5 of EN 81.2.**

Two different micro-switches check the status of the pins; one checks if the pins are extended and the other one checks if the pins are retired.

Furthermore there will be an output to drive the hydraulic unit of the pin device.

The basic explanation of the function is the following:

1- The car is at the bottom floor level with the pins extended and resting on the mechanical blocks; if oil pressure decreases under a predetermined threshold (controlled by a pressure switch) the re-levelling system starts operating when the pressure switch is activated and stops when it is deactivated.
2- When an up travel is required by a call, the car moves upwards in re-levelling speed for about 20 mm (this space can be adjusted through the regulation of the magnets in the shaft), then the pins retire; when the pins are fully retired, the car starts moving in high speed to the top floor.
3- When the car reaches the top floor, after a slowing down, it stops 20 mm above the floor level, then the pins extend; when the pins are fully extended, the car moves downward with re-levelling speed until the pins rest on the mechanical blocks. The downwards valve closes when a low pressure switch switchs on. Only after that, the doors will be enabled to open (also this time, if oil pressure decreases under the fixed threshold, re-levelling operations start and stop when the pressure switch is activated or deactivated respectively).
4- When a downwards travel is required by a call, the car moves upwards in re-levelling speed for about 20 mm, then the pins retire; when the pins are fully retired, the car moves in high speed to the bottom floor.
5- When the car reaches the bottom floor, after a slowdown, it stops 20 mm above the floor level, then the pins extend; when the pins are fully extended, the car moves downward in re-levelling speed until the pins rest on the mechanical blocks; only after that the door will be able to open.
6- If, during the floor standing, oil pressure decreases under the predetermined threshold, re-levelling operations start and stop when the pressure switch is activated or deactivated respectively. The pressure switch has to be adjusted as to prevent the disjunction of the pistons from the car frame without lifting the empty car.
7- In inspection mode, the pins can only be extended and retired by a manual operation from the car top and only if the car is standstill. It's not possible to know where the car is in this case, so if the car is between the two floors, the person on car top will take care to move the car only if the pins are retired. It will be possible to foresee a light signal on car top in order to know the status of the pins.
8- The moving sequence of the pins will be considered a run condition, so during this sequence the door will be not able to open. The advanced door opening will be always disabled.
9- During the moving of the pins, there must be a timer (as flight timer) that will block the pump of the pin device if the pins don't extend or retire after the time is expired; a safety cycle must be activated in the controller.
10- By law the control valve has to be equipped with a downwards hand device. This device shall never allow the disjunction of the pistons from the car frame (same as the slack rope valve in indirect acting installations).

An example of the electrical dispo is presented hereunder.

The logic of operation is supposed to be driven by the logic unit of the electrical panel.

ARBEITSZYKLUS DER VERRIEGELUNGSVORRICHTUNG

ACHTUNG: die Verriegelungsvorrichtung ist kein Sichereitsgerät und kann weder die Aufsetzvorrichtung (EN 81.2 Abschnitt 9.11) noch die Nachstellungssystem (EN 81.2 Abschnitt 14.2.1.5) ersetzen.

Zwei Mikroschalter sind auf die Stützunssystem an der Etage gesetzt. Diese Mikroschalter die Ausfahrene- und Einfahrenestatus der Kolben anzeigen.

1- Die Kabine steht an der niedriger Etage mit ausgefahrene Kolben gelegt auf die mechanische Stützen. Wenn die Öldruck unten eine voreingestellte minimale Swellenwert sinkt (die Öldruck ist von einem Pressostat gemessen) wird der Nievellierungssystem aktiviert; als das Pressostat ausschaltet wird, der Nievellierungssystem stoppt.

2- Wenn einen Aufwärtsgang angeruft wird, die Kabine bewegt sich nach oben mit Nievellierungsgeschwindigkeit für ca. 20 mm (dieser Abstand wird durch die Schachtmagnete eingestellt), schliesslich die Kolben einziehen. Die Kabine bewegt sich nach oben mit Grössgeschwindigkeit nur nach die Kolben komplett eingezogen sind.

3- Als die Kabine die Etage erreicht, sie stoppt 20 mm oben das Etageniveau: die Kolben fahren aus; als die Kolben komplett ausgezogen sind, bewegt sich die Kabine nach unten mit Nievellierungsgeschwindigkeit solange die Kolben sich aufstützen. Die Abwärtsventile schliesst sich, wenn der Minimal Druckschalter startet. Jetzt kann man die Türe Öffnen (auch in dieser Fall, wenn die Öldruck unten eine voreingestellte minimale Swellenwert sinkt wird der Nievellierungssystem aktiviert; als das Pressostat ausschaltet wird, der Nievellierungssystem stoppt).

4- Wenn einen Abwärtsgang angeruft wird, die Kabine bewegt sich nach oben mit Nievellierungsgeschwindigkeit für ca. 20 mm, schliesslich die Kolben einziehen. Als die Mikroschalter der Kolben seine Entblockung geben, die Kabine bewegt sich nach unten mit Grössgeschwindigkeit.

5- Als die niedriger Etage erreicht wird, nach die Geschwindigkeitabnahme, die Kabine stoppt 20 mm oben den Etageniveau: die kolben ausziehen und die Kabine sinkt und liegt auf die Stützungen. Jetzt kann man die Türe Öffnen.

6- Wenn die Öldruck während die Stellung beim Stockwerk unten eine voreingestellte minimale Swellenwert sinkt wird, der Nievellierungssystem aktiviert; als das Pressostat ausschaltet wird, der Nievellierungssystem stoppt. Der Druckschalter soll reguliert werden, sodass er die Trennung der Kolben vom Bausatz verhindert, ohne die leere Kabine zu heben.

7- In Inspektionsmodus, die Kolben müssen für die ganze Zeit eingezogen werden; sie können manuell nur vom Kabinendach aktiviert werden und nur mit Kabine stillstehend. In dieser Fall kann mann nicht wissen an weche höhe im Schacht die Kabine steht, deshalb der mann auf den Kabinendach müss es nur mit eingezogene Kolben fahren. Ein Leuchtsignal auf den Dach benachrichtigt uns uber die Position der Kolben.

8- Als die Kolben bewegen sich, kann man das Tür nicht Öffnen und die Türvoröffnung auch abschalten wird.

9- Wenn die Kolben nach einer bestimmten Zeit nicht komplett aus- oder eingezogen sind, wird die Pumpe der Verriegelugsvorrichtung gestoppt und einer Notzyklus in der Schalttafel aktiviert wird. Diese Zeit wird durch eine Zeitschaltuhr eingestellt.

10- Die Steuerventil muss beim Gesetz eine Notablassventil haben. Dieses Gerät soll die Trennung der Kolben vom Bausatz verhindern (wie die Kolbensicherung in der 2:1 Anlage).

Hiermit kann man ein Funktionsschema finden.

Die obige Betriebslogik wird in der elektrische Steuerung programmiert.

CYCLE DE FONCTIONNEMENT DU DISPOSITIF DE BLOCAGE CONTRE L'ABAISSEMENT DE LA CABINE

ATTENTION: le dispositif de blocage n' est pas un dispositif de sûreté et il ne remplace pas ni le dispositif a taquet (EN 81.2 paragraphe 9.11) ni le dispositif de nivelage (EN 81.2 paragraph 14.2.1.5.).

Il y a deux micro-interupteurs installée sur les systèmes du blocage à l'etage qui signalent si le piston est désenfilée ou rentrée.

1- La cabine est au l'etage inférieur avec pistons rentrée et appuyée sur les systèmes du blocage. Si la pression d'huile descend au dessous d'une seuil minimum contrôlée par un pressostat, le système de nivelage est mis en marche quand le pressostat est activée ou arrêtée quand le pressostat est désactivée.

2- Quand une course montante est requeris par une appel pour montée, la cabine marche en montée avec vitesse de nivelage pour environ 20 mm (cette distance est modifiable au moyen de les magnétos réglables du gaine), ensuite le pistons rentrent. Seulement après que le piston seront complétement rentrée, la cabine se met en march avec grand vitesse en montée.

3- Quand la cabine arrive a l'etage, elle s'arrête 20 mm sur le niveau de l'etage: les pistons se désenfilent et quand ils seront completement désenfilée, la cabine se met en marche en descente avec vitesse de nivelage jusqu'à les pistons s'appuyent. La valve de descente s'arrête quand le pressostat de pression minimum s'active. Maintenant on peut ouvrir les portes (en ce cas aussi si la pression d'huile descend au dessous d'une seuil minimum contrôlée par un pressostat, le système de nivelage est mis en marche quand le pressostat est activée ou arrêtée quand le pressostat est désactivée).

4- Si il y a une appel pour une course en descent, la cabine marche en montée avec une vitesse de nivelage pour environ 20 mm, ensuit les pistons rentrent. Seulement après que les pistons seront complètement rentrée, la cabine se met en march avec grand vitesse en descente.

5- Quand la cabine arrive a l'etage inferieur, après le ralentissement, la cabine s'arrête 20 mm sur le niveau de l'etage: les pistons se désenfilent, ensuite la cabine peut descendre jusqu'à s'appuyer sur les blocs. Maintenent on peut ouvrir les portes.

6- Pendant le stationnement dans l'étage si la pression d'huile descend au dessous d'une seuil minimum contrôlée par un pressostat, le système de nivelage est mis en marche quand le pressostat est désactivée. Le pressostat doit être réglé ce que le détachement des pistons du groupe de construction est empêché, et il ne dois pas élever la cabine vide.

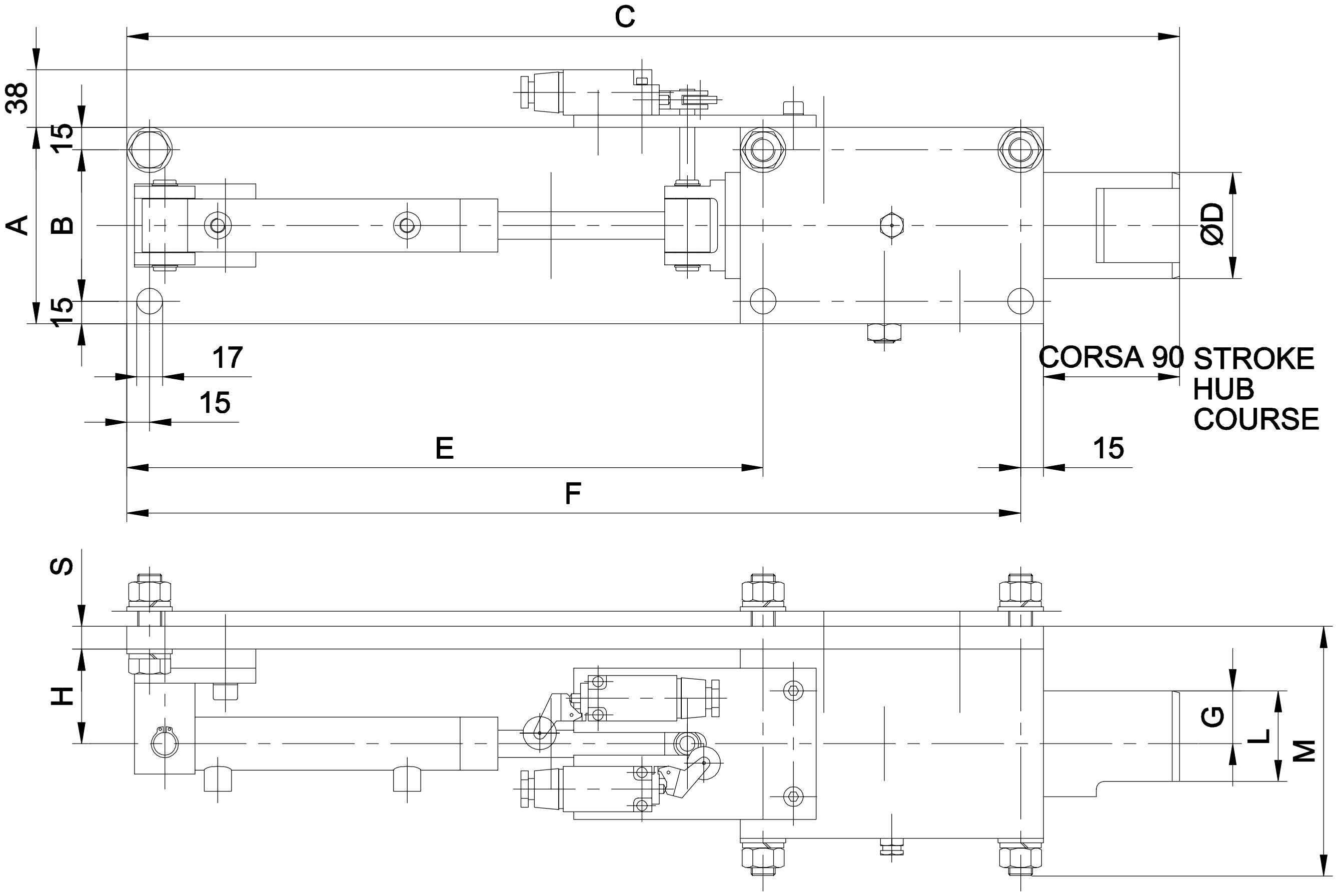
7- In conduite d'inspection le pistons doivent rester rentrée pendant tout le temps et il peuvent être désenfilée ou rentrée seulement par une commande manuelle de le toit de la cabine et seulement si celle-si est arrêté. Étant donné que dans ce cas ce n'est pas possible connaître le niveau où se trouve la cabine, laquelle pourait se trouver entre deux etages, l'operateur sur le toit de la cabine devra la mettre en marche seulement avec les piston rentrée. Un signal lumineux placée sur le toit de la cabine nous informera de la position de pistones.

8- Alors que le pistons sont en marche on ne peut pas ouvrir les ports et l'ouverture avancé de les portes aussi sera bloqué.

9- Si le pistons ne réussent pas à rentrer ou se désenfilent complètement après une certain périod du temps reglée par un timer, la pompe du dispositif de blocage s'arrête et s'active un cycle d'urgence dans le panneau électrique.

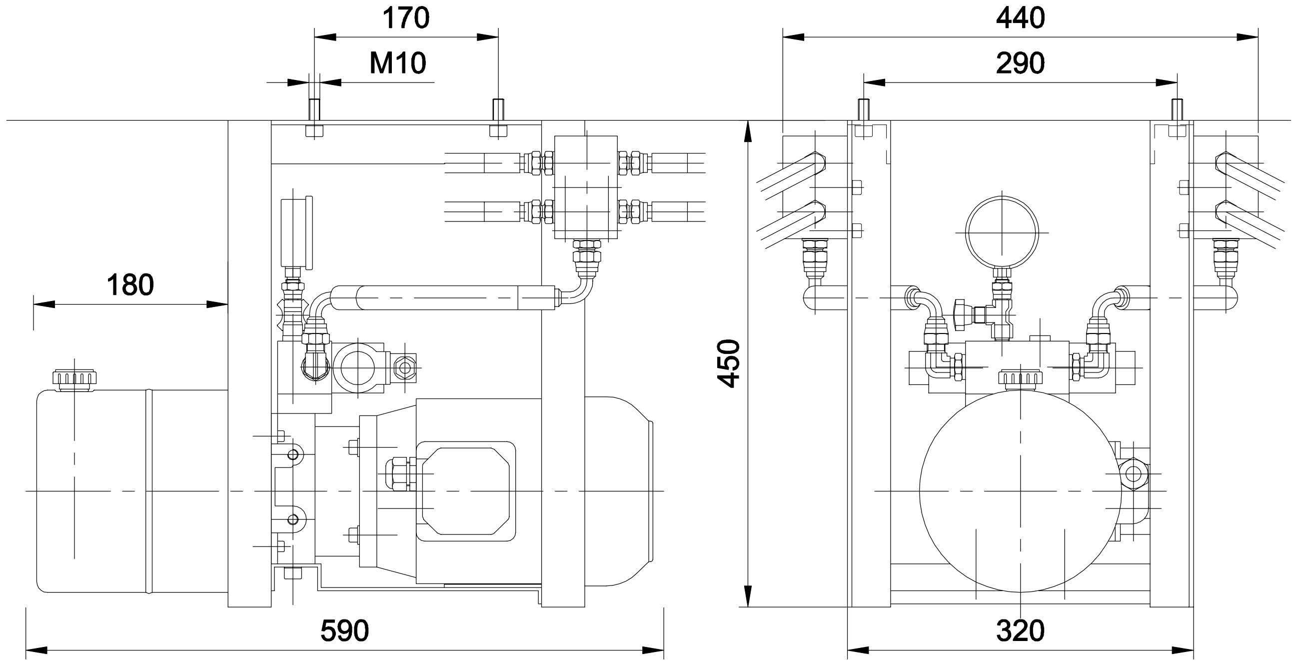
10- La valve de contrôle doit avoir par loi un dispositif de descente manuel. Ce dispositif doit empêcher le détachement des pistons du group de construction (comme la sécurité contre le mou de câble dans les installation 2 :1).

Un exemple de schéma électrique de fonctionnement est présenté de suite. La logique de fonctionnement cité ci-dessus doit être programmée dans le panel de commande.

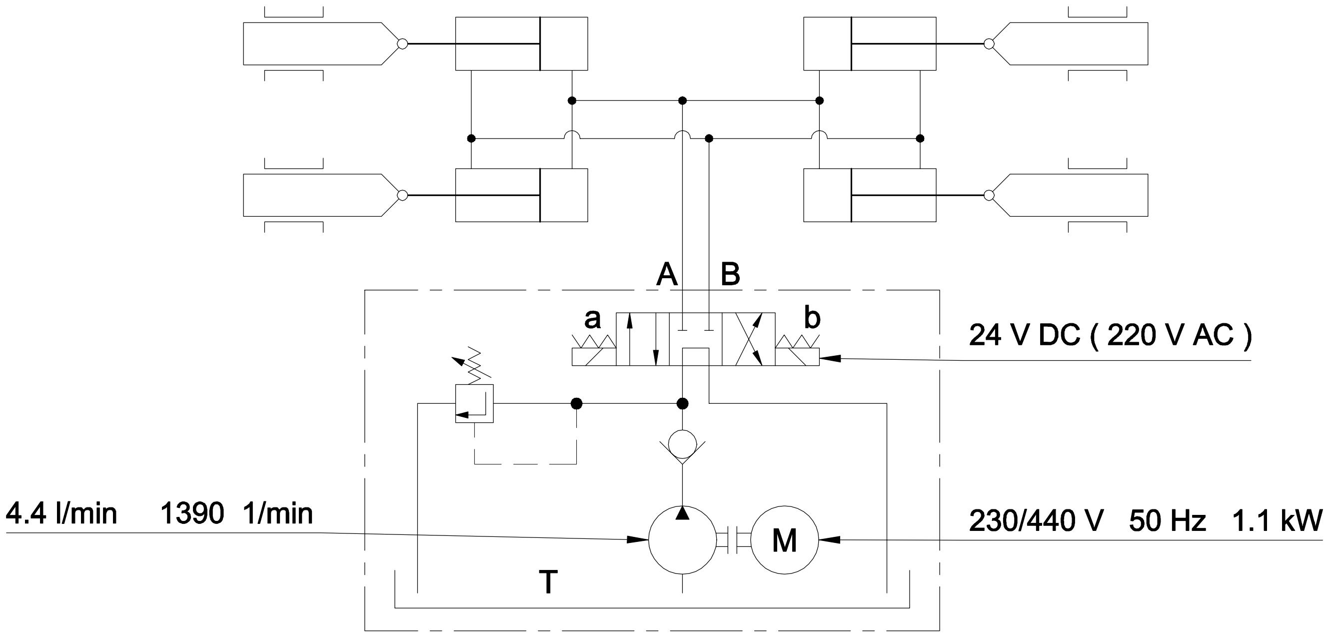


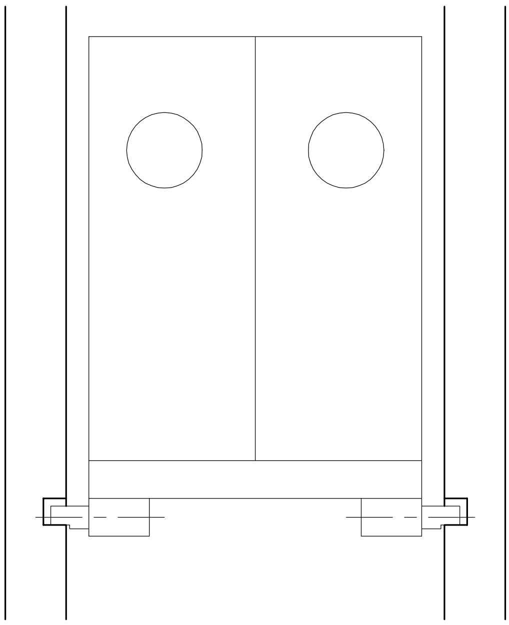
TIPO TYPE	ØD	A	B	C	E	F	G	H	L	M	S	Q+F$_{max}$ x1
3 PA 0901	50	120	90	695	420	590	25	50	40	140	15	2000 daN
3 PA 0902	63	130	100	695	420	590	31,5	62,5	53	165	15	4000 daN
3 PA 0903	70	130	100	695	420	590	35	62,5	60	165	15	6000 daN
3 PA 0904	85	150	120	695	420	590	42,5	70	75	180	15	10000 daN
3 PA 0905	105	190	160	735	460	630	52,5	95	90	240	25	15000 daN

Centralina idraulica - Aggregat - Pump unit - centrale hydraulique



Schema idraulico - Hydraulic layout
Hydraulik-Schaltplan - Schema hydraulique





Esempio di montaggio
Example of installation
Einbauvorschlag
Exemple de montage

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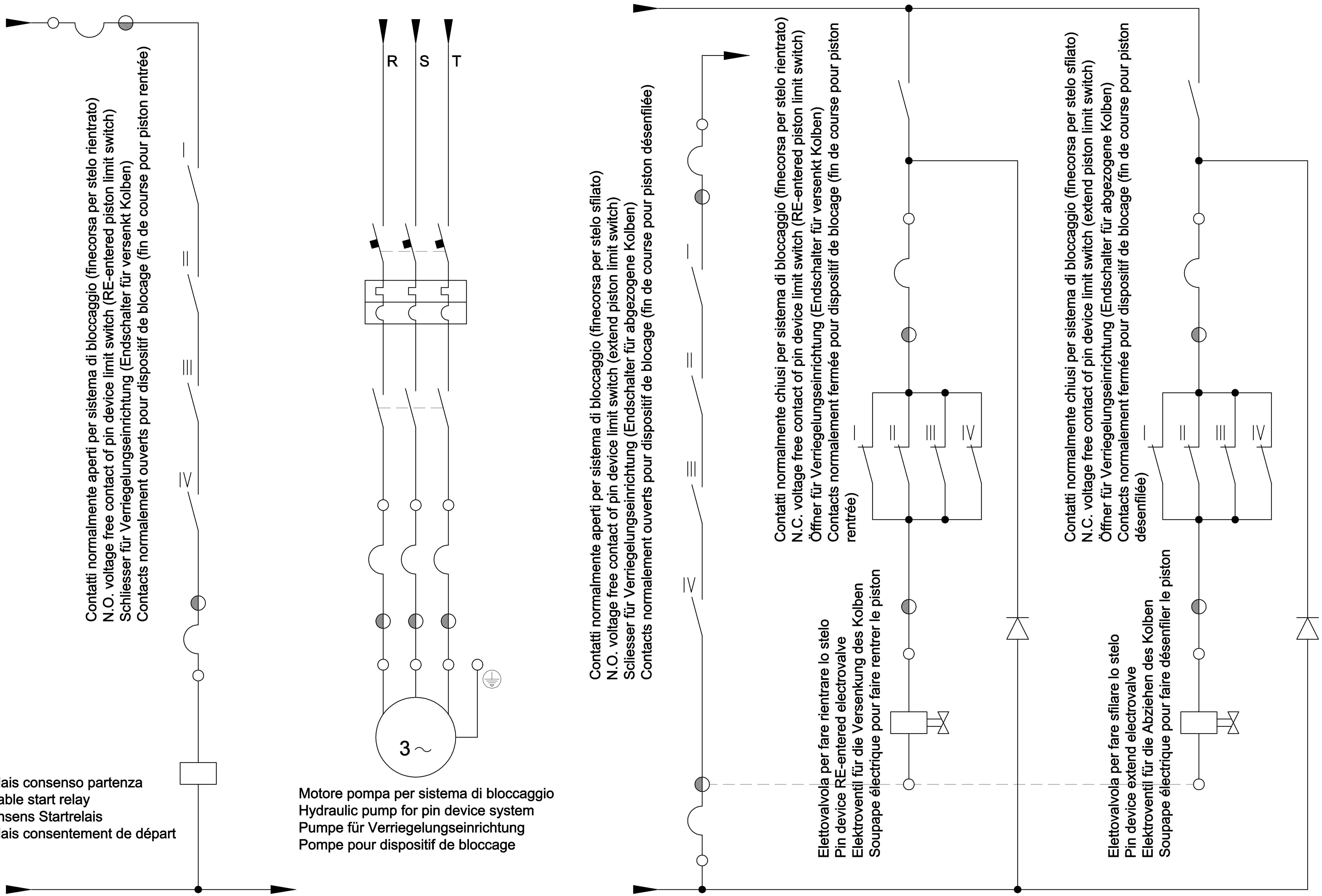

Relais consenso partenza
Enable start relay
Konsens Startrelais
Relais consentement de départ

Motore pompa per sistema di bloccaggio
Hydraulic pump for pin device system
Pumpe für Verriegelungseinrichtung
Pompe pour dispositif de bloccage