



A Type Pneumatic Actuator



CH-air A Type
June 2006

High quality ATEX approved pneumatic actuator

The CH-air A Type actuator is assembled using components machined to fine tolerances to produce a finished product with a very low friction coefficient. This produces an actuator that offers durability and reliability in service.

It is compliant with all the usual actuator norms making it compatible with similarly compliant valves, and position monitoring, control and feedback devices.

Careful design in the CH-air A Type spring return models has virtually eliminated the out of balance torques between air and spring strokes so familiar with most of its rivals. This produces a balanced air and spring stroke which creates an equal loading on valve stems.

Safety is a key feature, particularly in spring return models, where the use of pre-loaded spring capsules which fully relax before the actuator's end cap is

removed, protect engineers when servicing the actuator.

Whilst the end of travel can be adjusted in both the fully open and closed positions, the more



critical closed position adjustment is internal and therefore can not be inadvertently adjusted by a site operator who may not understand the importance of this adjustment.

Attention to details like this have ensured that the CH-air A Type actuators carry the CE mark and have ATEX approval

for use in hazardous areas. In all but the smallest and largest actuator sizes, the actuator has dual ISO:5211 drillings and a double square drive, making the mounting of the CH-air A Type actuators flexible and easy.

The actuator is of rack and pinion design with an anti blow-out proof pinion, and its extruded aluminium body is hard anodized to protect it against oxidation in non-aggressive atmospheres.

To cover more aggressive atmospheres, an electroless nickel-plated version, a Teflon® coated version, and stainless steel versions are available.

Repair kits containing replacement soft seals and acetal resin sliding parts are available, but with a guarantee of 1 million cycles is offered as standard, on all but the highest cycling applications, the CH-air A Type actuator is almost maintenance

Quick guide to the CH-air A Type standard features :

Robust rack and pinion construction

High accuracy machining of components

ATEX Ex II 2 GD Approved for use in hazardous areas

CE Approved

Guaranteed for 1,000,000 cycles

Balanced air & spring strokes in spring return version

Safe to dismantle for routine maintenance

Compliant with all actuator standards

Accessories are easy to mount

Hard anodised aluminium body

ENP coated option

Teflon® coated option

Stainless steel version



Body protection options

Hard Anodised

An electrical process that produces a thick anodic coating of up to 50 microns resistant to corrosive cracking stress and dips or prays of sodium and chlorine.

It will not chip even after sudden temperature changes.

ENP Electroless Nickel plated

Chemical nickel is deposited without electricity and has superb adherence to the base metal, including sharp angles, dead holes, threads and grooves.

The very hard coating is resistant to salty atmospheres.

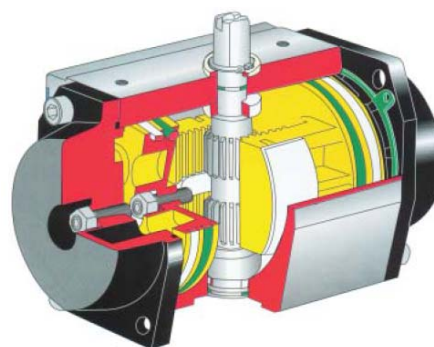
Teflon® coated

This impressive coating is resistant to salts, limestone, acids, alkalis, glues and solvents, and provides a thermal barrier up to 250°C.

It adheres perfectly to metallic substrata and is recommended for highly aggressive atmosphere applications.

Materials of construction:

Body	Extruded aluminium alloy to ASTM:6063, anodised according to UNI:4522
End caps	Die cast aluminium alloy to ASTM:BI79, epoxy-polyester powder coated
Pistons	Die cast aluminium alloy to ASTM: BI79
Pinion	Nickel plated steel
Sliding parts	Acetal resin (LAT LUB 731320T)
Fasteners	AISI 304 stainless steel
Springs	Pre-compressed cartridge, steel spring with epoxy powder coating
Seals	NBR Nitrile rubber (VITON or EPDM on request)
Grease	MOS2



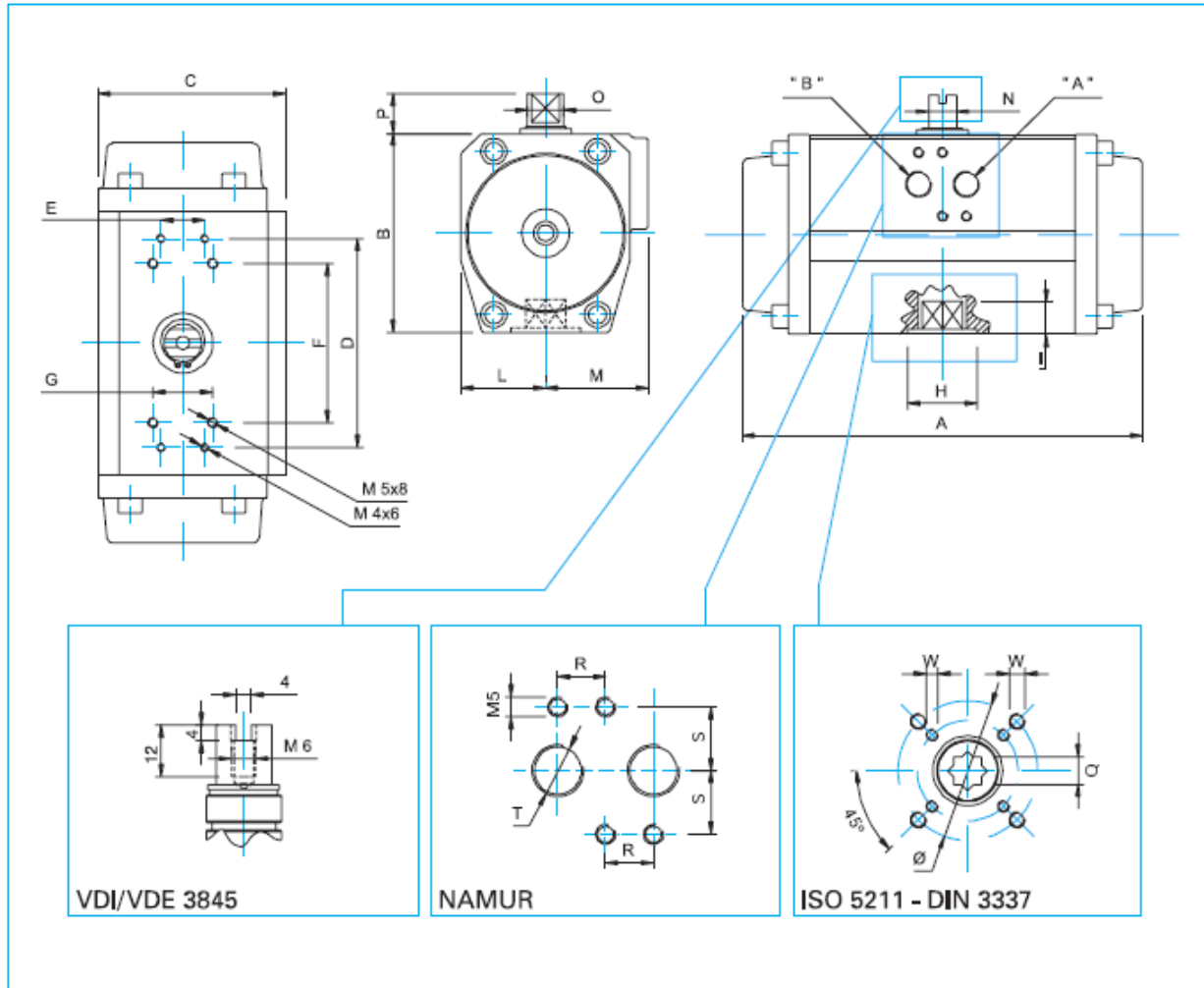
Air volumes and working times:

Modelo - Model Model - Modèle	Presión Max. Max. Pressure Maximaldruck Pression Max	Rotación Rotation Rotationen Rotation	Volumen- Volumen Volumen - Volume	Abierto - Open Offen - Ouvert		Cerrado - Closed Geschlossen - Ferme		Grasa Estándar Standard Grease Standard Fett Graisse Standard
				DA	SR	DA	SR	
CH032	8 bar	90° +/- 3	0,07 Litres	0,5 sec.	-	0,5 sec.	-	Bisulturo de Molibdeno - Molybdenum Bisulp.
CH042			0,18 Litres		0,5 sec.	0,5 sec.		
CH050			0,23 Litres		0,6 sec.	0,6 sec.		
CH063			0,45 Litres	0,6 sec.	0,7 sec.	0,7 sec.	0,9 sec.	
CH075			0,61 Litres			1,0 sec.		
CH085			0,98 Litres	0,8 sec.	1,1 sec.	0,9 sec.	1,3 sec.	
CH100			1,80 Litres			1,2 sec.	1,6 sec.	
CH115			2,80 Litres	1,1 sec.	1,3 sec.	1,1 sec.	2,1sec.	
CH125			3,70 Litres			2,0 sec.		
CH145			4,90 Litres	1,4 sec.	1,4 sec.	2,0 sec.		
CH160			8,00 Litres	1,3 sec.	2,1sec.	1,6 sec.	2,6sec.	
CH180			11,10 Litres	2,3 sec.		2,6 sec.		
CH200			14,20 Litres	3,6 sec.	4,6 sec.	4,6 sec.	6,1sec.	
CH240			19,20 Litres	4,1 sec.		4,5 sec.		
CH270			22,20 Litres	4,5 sec.	6,0 sec.	4,5 sec.	6,0sec.	

Torques Nm -Double Acting

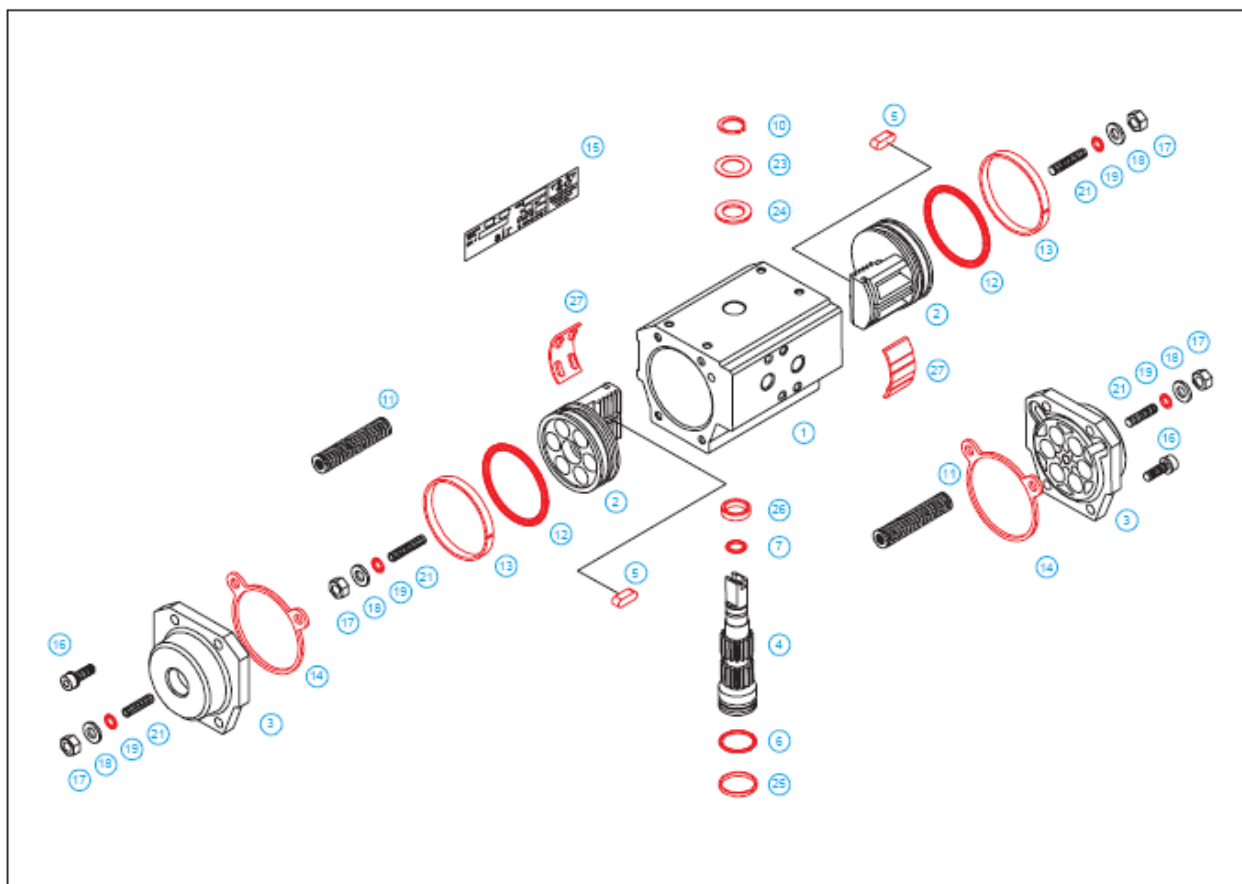
Modelo Model Modèle	PRESIÓN DE ALIMENTACIÓN DE AIRE EN bar AIR SUPPLY IN bar LUFTSPEISUNG IN bar PRESSION D'AIR MOTEUR EN bar									Peso - Weight Gewicht - Poids
	3	4	5	6	7	8	9	10		
CH032	-	5.0	6.3	7.6	8.8	10	11.4	12.6	0,420 Kgr.	
CH042	6.5	8.7	10.9	13.0	15.2	17.3	19.5	21.7	0,870 Kgr.	
CH050	9.2	12.3	15.4	18.5	21.5	24.6	27.7	30.8	1,070 Kgr.	
CH063	16.5	22.0	27.5	33.0	38.5	44.0	49.5	55.0	1,600 Kgr.	
CH075	35.1	46.8	58.5	70.2	81.9	93.6	105.3	117.0	2,900 Kgr.	
CH085	53.4	71.2	89.0	106.9	124.7	142.4	160.3	178.1	4,200 Kgr.	
CH100	89.2	110.9	138.6	166.4	194.1	221.8	249.5	277.3	5,800 Kgr.	
CH115	137.2	183.0	228.7	274.5	320.2	366.0	411.7	457.5	9,200 Kgr.	
CH125	180.5	240.7	300.9	361.1	421.2	481.4	541.6	601.8	11,900 Kgr.	
CH145	260.1	346.8	433.5	520.2	606.9	693.6	780.3	867.0	15,500 Kgr.	
CH160	355.5	473.4	591.7	710.1	828.4	946.8	1065.1	1183.5	20,500 Kgr.	
CH180	479.0	638.6	798.3	958.0	1118	1277	1437	1597	30,500 Kgr.	
CH200	665.6	887.5	1109.4	1333.3	1553.1	1775.0	1996.9	2218.8	43,000 Kgr.	
CH240	1117.6	1490.2	1862.7	2235.3	2607.8	2980.4	3352.9	3725.4	60,000 Kgr.	
CH270	1617.6	2156.8	2696.0	3235.2	3774.4	4313.6	4852.8	5392.0	94,000 Kgr.	

Dimensions:



	Modelo Actuador - Model Actuator - Model Schwenkarmtrieb - Modèle Actionneur														
	CH032	CH042	CH050	CH063	CH075	CH085	CH100	CH115	CH125	CH145	CH160	CH180	CH200	CH240	CH270
A	117	160	138	155,5	210	228	280,5	310	362	390	462	474	575	590	685
B	45	57	67	83	100	110	125	142	155	175	196	220	240	298	332
C	48	60,5	75	86	94	104	120	134	141	163	176	196	220	300	352
D	.	.	.	.	105	105	105	139	139	139	139	139	139	.	.
E	.	.	.	.	22	22	22	22	22	22	22	22	22	.	.
F	50	80	80	80	80	80	80	130	130	130	130	130	130	130	130
G	25	30	30	30	30	30	30	30	30	30	30	30	30	30	30
H	.	25	25	30	35	40	55	55	55	70	75	75	100	100	130
I	10	13	13	16	20	20	20	25	25	30	30	30	37	37	50
L	22,5	27	33,5	38	42,5	49	55	63,5	69,5	80	88	98	110	150	166
M	25,5	33,5	41,5	48	51,5	55	65	70,5	71,5	83	88	98	110	150	166
T/DIN 259	1/8"	1/8"	1/8"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/2"	1/2"
N	8	8	8	8	14	14	14	27	27	27	27	27	32	32	35
O	12	12	12	12	18	18	18	36	36	36	36	36	42	60	80
P	20	20	20	20	20	20	20	30	30	30	50	50	50	50	50
Q	9	11	11	11	17	17	17	22	22	27	27	27	36	36	46
R	12	12	12	12	12	12	12	12	12	12	12	12	12	20	20
S	16	16	16	16	16	16	16	16	16	16	16	16	16	25	25
DIAM. Ø	36	36/50	36/50	36/50	50/70	50/70	70/102	70/102	70/102	102/125	102/125	102/125	140	140	165
W	M5	M5/M6	M5/M6	M5/M6	M6/M8	M5/M8	M8/M10	M8/M10	M8/M10	M10/M12	M10/M12	M10/M12	M16	M16	M20
ISO 5211	F03	F03/F05	F03/F05	F03/F05	F05/F07	F05/F07	F07/F10	F07/F10	F07/F10	F10/F12	F10/F12	F10/F12	F14	F14	F16

Exploded view:



Pieces Parts Ersatzteile Pièces	Set recambio Spare parts set Ersatzteile gruppe Set Pièces de réchange	Cantidad Quantity	Descripción - Description - Beschreibung - Description			
1		1	CUERPO	BODY	KÖRPER	CORPS
2		2	PISTÓN	PISTON	KOLBEN PISTON	PISTON
3		2	TAPA	END CAP	DECKEL	COUVERCLE
4		1	PIÑÓN	PINION	RITZEL	PIGNON
	- 5	2	GUÍA PISTÓN	PISTON PILOT KEY	FÜHRUNGSKEL RITZEL	CLAVETTE GUIDAGE PISTON
	- 6	1	JUNTA INFERIOR PIÑÓN	O-RING LOWER PINION	O-RING UNTERES RITZEL	JOINT SUPERIEUR PIGNON
	- 7	1	JUNTA SUPERIOR PIÑÓN	O-RING UPPER PINION	O-RING OBERES RITZEL	JOINT INFERIEUR PIGNON
	- 10	1	CIRCLIP	SEEGER RING	SEEGERRING	BAGUE SEEGER
11			MUELLES	SPRING GROUP	FEDERGRUPE	GRUPE RESSORT
	- 12	2	JUNTA TAPA PISTÓN	O-RING FOR PISTON	O-RING DES RITZEL	JOINT PISTON
	- 13	2	ANILLO ANTIFRICCIÓN	ANTIFRICTION RING	ANTIFRIKTIONSRING RITZEL	BAGUE ANTIFRICTION PISTON
	- 14	2	JUNTA TAPA	COVER GASKET	DECKELDICHUNG	JOINT COUVERCLE
15		1	PLACA IDENTIFICACIÓN	NAME PLATE	NAMENSSCHILD	PLAQUETTE D'IDENTIFICATION
16		8	TORNILLO TAPA	END CAP BOLT	DECKELFIXIERSCHRAUBE	VIS FIXAGE COUVERCLE
17		4	TUERCA	NUT	MUTTER	ECROU
18		2	ARANDELA	WASHER	UNTERLEGSCHLEIBE	RONDELLE
	- 19	1	JUNTA	O-RING	O-RING	O-RING
21		1	ESPÁRRAGO REGULACIÓN EXTERIOR	STROKE ADJUSTMENT	DECKELSTIFT	GRAIN DU COUVERCLE
	- 23	1	ARANDELA	PINION THRUST WASHER	DRUCKSCHEIBE RITZEL	RONDELLE
	- 24	1	ARANDELA NYLON	ANTIFRICTION WASHER	ANTIFRIKTIONSUNTERLEGSCHLEIBE	RONDELLE ANTIFRICTION
	- 25	1	GUÍA INFERIOR PIÑÓN	PINIO LOWER BEARING	RITZELFÜHRUNGSRING	BAGUE INFERIEUR GUIDAGE
	- 26	1	GUÍA SUPERIOR PIÑÓN	PINIO UPPER BEARING	OBERER RITZELFÜHRUNGSRING	BAGUE SUPERIEUR GUIDAGE
	- 27	2	PATÍN ANTIFRICCIÓN	PISTON BEARING	ANTIFRIKTIOSGLEITBACKE KOLBEN	GLISSEUR ANTIFRICTION
28		2	ESPÁRRAGO REGULACIÓN INTERIOR	PISTON DOWEL	KOLBENSTIFT	GRAIN DU PISTON

Torque output (Nm) - Spring return models

Correct positioning of springs:



Modelo Model Model Modèle	PRESIÓN DE ALIMENTACIÓN DE AIRE EN bar AIR SUPPLY IN bar LUFTSPEISUNG IN bar PRESSION D'AIR MOTEUR EN bar														Peso Weight Gewicht Poids Kgr.
	3		4		5		6		7		8		Para muelles Spring torque Federtarif Couple de ressorts		
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
042 SR 2/2	4.0	2.0	6.2	4.2	8.4	6.4	10.6	8.6	12.7	10.7	14.9	12.9	4.5	2.5	0,890
042 SR 3/3			5.0	2.0	7.1	4.1	9.3	6.3	11.5	8.5	13.7	10.7	6.8	3.8	0,910
042 SR 4/4							8.1	4.1	10.2	6.2	12.4	8.4	9.0	5.0	0,930
050 SR 3/3	5.7	3.5	8.9	6.6	12.0	9.6	15.1	12.7	18.1	15.7	21.2	18.8	5.7	3.5	1,135
050 SR 4/4			7.7	4.7	10.8	7.7	13.9	10.8	16.9	13.8	20.0	16.9	7.7	4.7	1,160
050 SR 5/5					9.6	5.8	12.7	8.9	15.7	11.9	18.8	15.0	9.6	5.8	1,180
050 SR 6/6					8.4	3.9	11.5	7.0	14.5	10.0	17.6	13.1	11.5	7.0	1,200
063 SR 3/3	9.4	6.3	14.9	11.7	20.4	17.2	25.9	22.7	31.4	28.2	36.9	33.7	10.2	7.2	1,700
063 SR 4/4			12.3	8.3	17.8	13.8	23.3	19.3	28.8	24.8	34.3	30.3	13.7	9.7	1,830
063 SR 5/5					15.4	10.4	20.9	15.9	26.4	21.4	31.9	26.9	17.1	12.1	1,870
063 SR 6/6					13.0	7.0	18.5	12.5	24.0	18.0	29.5	23.5	20.5	14.5	1,800
075 SR 3/3	22.5	12.6	34.2	24.4	46.0	36.1	57.7	47.8	69.4	59.5	81.1	71.2	22.5	12.6	3,140
075 SR 4/4			30.0	16.9	41.8	28.6	53.5	40.3	65.2	52.0	76.9	63.7	30.0	16.9	3,210
075 SR 5/5					37.6	21.1	49.3	32.8	61.0	44.5	72.7	56.2	37.6	21.1	3,290
075 SR 6/6					33.4	13.6	45.1	25.3	56.8	37.0	68.5	48.7	45.1	25.3	3,370
085 SR 3/3	34.5	18.9	52.4	36.7	70.2	54.5	88.0	72.3	105.8	90.1	123.6	107.9	34.5	18.9	4,520
085 SR 4/4			46.1	25.2	63.9	43.0	81.7	60.8	99.5	78.6	117.3	96.4	46.1	25.2	4,620
085 SR 5/5					57.6	31.5	75.4	49.3	93.2	67.1	111.0	84.9	57.6	31.5	4,730
085 SR 6/6					51.5	20.0	69.1	37.8	86.9	55.6	104.7	73.4	69.1	37.8	4,830
100 SR 3/3	53.2	30.0	80.9	57.7	108.7	85.4	136.4	113.1	164.1	140.8	191.8	168.5	53.2	30.0	6,310
100 SR 4/4			70.9	40.0	98.7	67.7	126.4	95.4	154.1	123.1	181.8	150.8	70.9	40.0	6,480
100 SR 5/5					88.7	50.0	116.4	77.7	144.1	105.4	171.8	133.1	88.7	50.0	6,650
100 SR 6/6					78.7	32.2	106.4	60.0	134.1	87.7	161.8	115.4	106.4	60.0	6,820
115 SR 3/3	84.3	53.0	130.0	98.8	175.8	144.5	221.6	190.3	267.3	236.0	313.0	281.7	84.3	53.0	9,750
115 SR 4/4			112.3	70.7	158.1	116.4	203.9	162.2	249.6	207.9	295.3	253.6	112.3	70.7	9,940
115 SR 5/5					140.4	88.3	186.2	134.1	231.9	179.8	277.6	225.5	140.4	88.3	10,120
115 SR 6/6					122.7	60.2	168.5	106.0	214.2	151.7	259.9	197.4	168.5	106.0	10,300
125 SR 3/3	116.8	63.7	177.0	123.9	237.3	184.1	297.5	244.2	357.6	304.3	417.7	364.4	116.8	63.7	13,050
125 SR 4/4			155.7	85.0	216.0	145.2	276.2	205.3	336.3	265.4	396.4	325.5	155.7	85.0	13,440
125 SR 5/5					194.7	106.3	254.9	166.4	315.0	226.5	375.1	286.6	194.7	106.3	13,820
125 SR 6/6					173.4	67.4	233.6	127.5	293.7	187.6	353.8	247.7	233.6	127.5	14,200
145 SR 3/3	158.0	92.0	245.0	179.0	332.0	265.0	418.0	352.0	505.0	439.0	592.0	526.0	158.0	92.0	17,250
145 SR 4/4			211.0	123.0	298.0	210.0	384.0	269.0	471.0	383.0	558.0	470.0	224.0	136.0	17,840
145 SR 5/5					264.0	154.0	350.0	240.0	437.0	327.0	524.0	414.0	280.0	170.0	18,420
145 SR 6/6					230.0	98.0	316.0	184.0	403.0	271.0	490.0	358.0	336.0	204.0	19,000
160 SR 3/3	222.4	132.6	340.7	251.0	459.1	369.3	577.4	487.6	695.7	605.9	814.0	724.2	222.4	132.6	17,250
160 SR 4/4			296.5	176.9	414.9	295.2	533.2	413.5	651.5	531.8	769.8	650.1	296.5	176.9	17,840
160 SR 5/5					370.7	221.1	489.0	339.4	607.3	457.7	725.6	576.0	370.7	221.1	18,420
160 SR 6/6					326.5	147.0	444.8	265.3	563.1	383.6	681.4	501.9	444.8	265.3	24,900
180 SR 3/3	287.9	191.1	447.6	350.7	607.3	510.4	766.9	670.0	926.8	829.7	1111.0	974.2	287.9	191.1	33,620
180 SR 4/4			383.9	254.7	543.6	414.4	703.3	574.0	862.9	733.7	969.8	814.0	383.9	254.7	34,660
180 SR 5/5					479.9	318.4	639.6	478.1	792.2	637.7	825.6	670.0	479.9	318.4	35,700
180 SR 6/6					416.2	222.4	575.9	382.1	735.6	641.8	881.4	750.9	575.9	382.1	36,740
200 SR 3/3	423.6	242.0	644.7	463.8	867.4	685.8	1089	907.7	1311	1130	1533	1351	423.6	242.0	48,000
200 SR 4/4			564.8	322.6	786.7	544.6	1008	766.5	1230	988.4	1452	1209	564.8	322.6	49,670
200 SR 5/5					706.0	403.4	927.9	625.3	1150	847.2	1372	1068	706.0	403.4	51,330
200 SR 6/6					625.3	262.2	847.2	484.1	1069	706.0	1291	927.0	847.2	484.1	53,000
240 SR 3/3	664.0	453.6	1036.6	826.2	1409.1	1198.7	1781.7	1571.2	2154.2	1943.8	2526.8	2316.3	664.0	453.6	67,200
240 SR 4/4			885.4	604.8	1257.9	977.4	1630.5	1349.9	2003.0	1722.5	2375.6	2095.0	885.4	604.8	69,600
240 SR 5/5					1106.7	756.0	1479.3	1128.6	1851.8	1501.1	2224.4	1873.7	1106.7	756.0	72,000
240 SR 6/6					955.5	534.7	1328.1	907.2	1700.6	1279.8	2073.2	1652.3	1328.1	907.2	74,400
270 SR 3/3	912.5	705.1	1451.7	1244.3	1990.9	1783.5	2530.1	2322.7	3069.3	2861.9	3608.5	3401.1	912.5	705.1	103,500
270 SR 4/4			1216.7	940.2	1755.9	1479.4	2295.1	2018.6	2834.3	2557.8	3373.5	3097.0	1216.7	940.2	106,660
270 SR 5/5					1520.9	1175.5	2060.1	1714.4	2599.3	2144.4	3138.5	2792.8	1520.9	1175.5	109,830
270 SR 6/6					1285.8	871.0	1825.0	1410.2	2364.2	1953.6	2903.4	2488.6	1825.0	1410.2	113,000