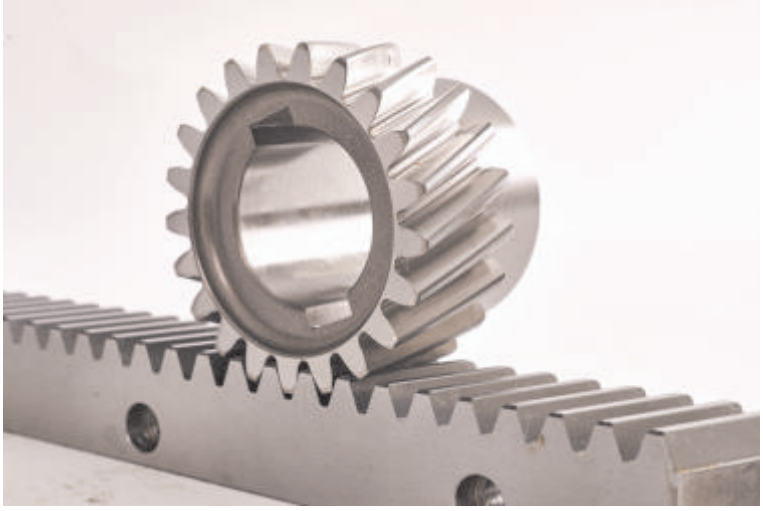
CREMALLERAS Y ENGRANAJES DE PRECISION

DINAMICA DRIVE SOLUTIONS

Cremalleras y piñones de precisión

Contenido



INSTRUCCIONES DE MONTAJE

La unión de dos cremalleras debe garantizar el valor del paso de la propia cremallera.

Las cremalleras pueden alcanzar cualquier longitud uniéndolos y manteniendo el valor del paso.

Para un correcto montaje recomendamos las siguientes tolerancias:

- El chaflán de la cremallera debe ser inferior al chaflán o radio de la superficie de montaje.
- Las superficies deben garantizar una perpendicularidad máxima de 0,04 mm (se recomienda 0,02 mm)
- Las superficies deben garantizar un paralelismo máximo de 0,04 mm (se recomienda 0,02 mm) .

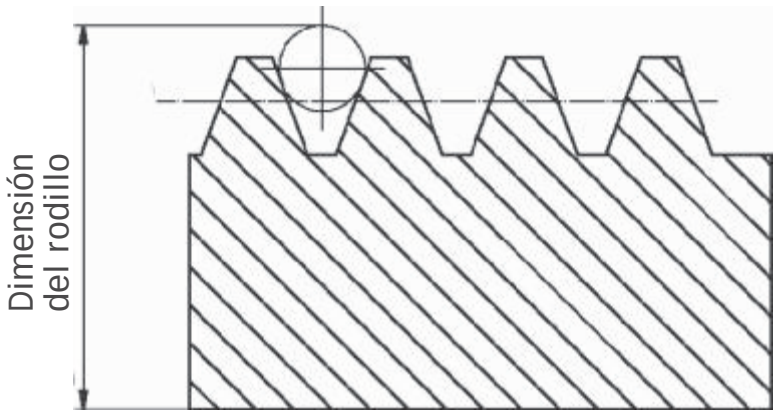
Par de apriete del tornillo

El par de apriete de los tornillos es importante para garantizar una instalación adecuada.

MODULO	TORNILLO	APRIETE	
Clase de resistencia del tornillo		10,9	12,9
1 - 1,5 - 2	M6	14	16,4
2,5 - 3 - 4	M8	34	40
5	M12	116	136
8	M20	570	667
10	M30	1969	2305
12	M36	3435	4020

Tolerancia a la altura de los dientes (cota de rodillos)

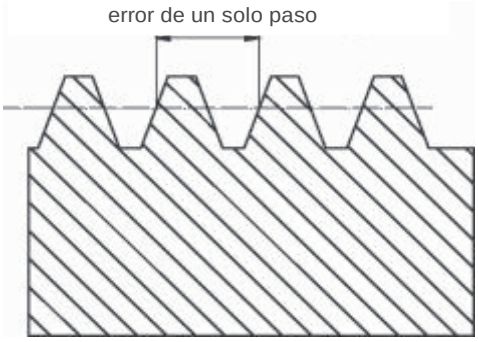
- La altura del diente de la cremallera se mide insertando un rodillo dentro del diente.
- La distancia desde la base de la cremallera hasta el rodillo determina la dimensión de referencia en el que la tolerancia de la altura del diente se define en función de la clase de precisión.

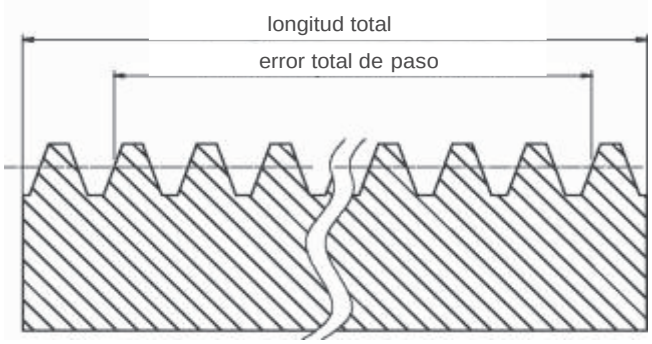


ESPECIFICACIONES TÉCNICAS

Error en el paso

- Error de un solo paso
- Error total de paso

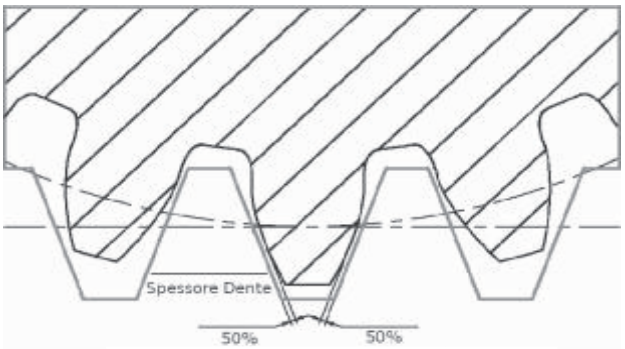




Tolerancia de altura de los dientes; Juego a inversión

TOLERANCIA DE ESPESOR DEL DIENTE (mm)	JUEGO (mm)
0,022	0,021
0,025	0,024
0,030	0,027
0,033	0,031
0,036	0,034
0,040	0,038
0,044	0,041
0,050	0,048
0,058	0,055
0,066	0,062
0,073	0,068
0,090	0,086
0,109	0,103

JUEGO RECOMENDADO (mm)	
MIN	
Q5	0,02
Q6	0,02
Q7	0,04
Q8	0,04
Q9	0,05
Q10	0,05



juego a inversión

ESPECIFICACIONES TÉCNICAS

Forma	Desviaciones	DIN5	DIN6	DIN7	DIN8	DIN9	DIN10
1,5	Tolerancia a la altura de los dientes (µm) = (dimensión del rodillo)	-15	-20	-40	-66	-87	-124
	Error de un solo paso (µm)	≤6	≤8	≤12	≤16	≤23	≤37
	Error total de paso (µm)	≤24	≤36	≤48	≤66	≤90	≤148

Forma	Desviaciones	DIN5	DIN6	DIN7	DIN8	DIN9	DIN10
2	Tolerancia a la altura de los dientes (µm) = (dimensión del rodillo)	-15	-20	-40	-66	-87	-124
	Error de un solo paso (µm)	≤6	≤8	≤12	≤16	≤22	≤37
	Error total de paso (µm)	≤24	≤36	≤48	≤66	≤90	≤148

Forma	Desviaciones	DIN5	DIN6	DIN7	DIN8	DIN9	DIN10
3	Tolerancia a la altura de los dientes (µm) = (dimensión del rodillo)	-15	-10	-40	-66	-87	-124
	Error de un solo paso (µm)	≤6	≤9	≤12	≤18	≤25	≤39
	Error total de paso (µm)	≤26	≤36	≤48	≤72	≤100	≤162

Forma	Desviaciones	DIN5	DIN6	DIN7	DIN8	DIN9	DIN10
4	Tolerancia a la altura de los dientes (µm) = (dimensión del rodillo)	-15	-20	-40	-66	-87	-124
	Error de un solo paso (µm)	≤7	≤10	≤12	≤19	≤28	≤43
	Error total de paso (µm)	≤28	≤36	≤48	≤72	≤110	≤175

*Las tolerancias indicadas en la tabla se refieren a una longitud de 1.000 mm

Cremalleras de precisión

Forma	Desviaciones	DIN5	DIN6	DIN7	DIN8	DIN9	DIN10
5	Tolerancia a la altura de los dientes (µm) = (dimensión del rodillo)	-15	-20	-40	-66	-87	-124
	Error de un solo paso (µm)	≤7	≤10	≤12	≤18	≤28	≤43
	Error total de paso (µm)	≤28s	≤40	≤52	≤80	≤110	≤175

Forma	Desviaciones	DIN5	DIN6	DIN7	DIN8	DIN9	DIN10
6	Tolerancia a la altura de los dientes (µm) = (dimensión del rodillo)	-15	-20	-40	-66	-87	-124
	Error de un solo paso (µm)	≤7	≤10	≤12	≤18	≤28	≤43
	Error total de paso (µm)	≤28	≤40	≤52	≤80	≤110	≤175

Forma	Desviaciones	DIN5	DIN6	DIN7	DIN8	DIN9	DIN10
8	Tolerancia a la altura de los dientes (µm) = (dimensión del rodillo)	-15	-20	-40	-66	-87	-124
	Error de un solo paso (µm)	≤8	≤11	≤12	≤22	≤31	≤49
	Error total de paso (µm)	≤31	≤43	≤52	≤80	≤110	≤188

Forma	Desviaciones	DIN5	DIN6	DIN7	DIN8	DIN9	DIN10
10	Tolerancia a la altura de los dientes (µm) = (dimensión del rodillo)	-15	-20	-40	-66	-87	-124
	Error de un solo paso (µm)	≤8	≤11	≤12	≤22	≤31	≤49
	Error total de paso (µm)	≤31	≤43	≤52	≤80	≤110	≤188

*Las tolerancias indicadas en la tabla se refieren a una longitud de 1.000 mm

CÓDIGO DE PEDIDO- CREMALLERAS

Ejemplo: SHGH021006

S	H	G		01	10	06

Materiales
S: C45 (S45C)
P: 42CrMo4 (SCM440)

Dientes
S: Dientes rectos
H: Dientes helicoidales

Acabado
F: Fresado
G: Rectificado

Tratamiento térmico
H: Inducción
C: Cementado
Q: Bonificado
N: Nitruración
: Sin tratamiento

Modulo
02: M2
03: M3
04: M4
05: M5
06: M6
07: M7
0: M8

Longitud
025: 250 mm
05: 500 mm
10: 1000 mm*
15: 1500 mm
20: 2000 mm

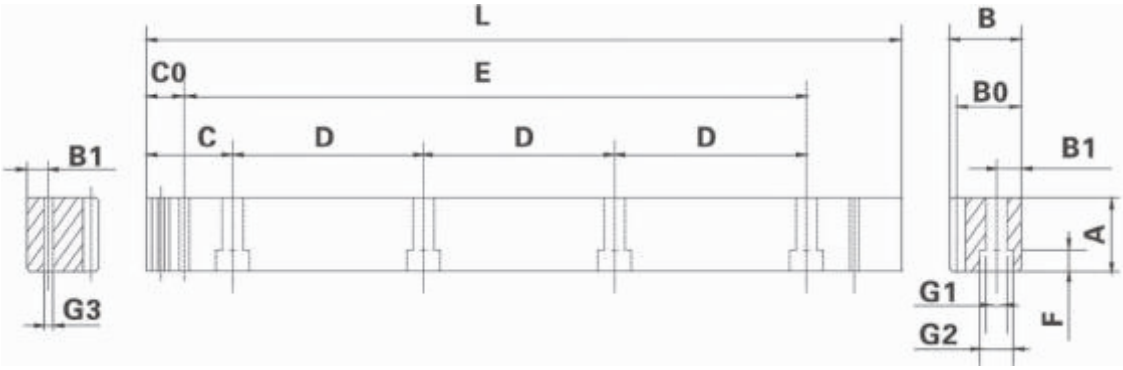
* en stock

Calidad
05: DIN 5
06: Din6
07: DIN7
08: DIN8
09: DIN9
10: DIN10

DIN	1	2	3	4	5	6	7	8	9	10	11	12
JIS				0	1	2	3	4	5	6	7	8
DIN	1	2	3	4	5	6	7	8	9	10	11	12
AGMA		16	15	14	13	12	11	10	9	8	7	6

TABLAS DIMENSIONALES

Calidad Q5
Serie SSGH/RSGH – Dientes rectos

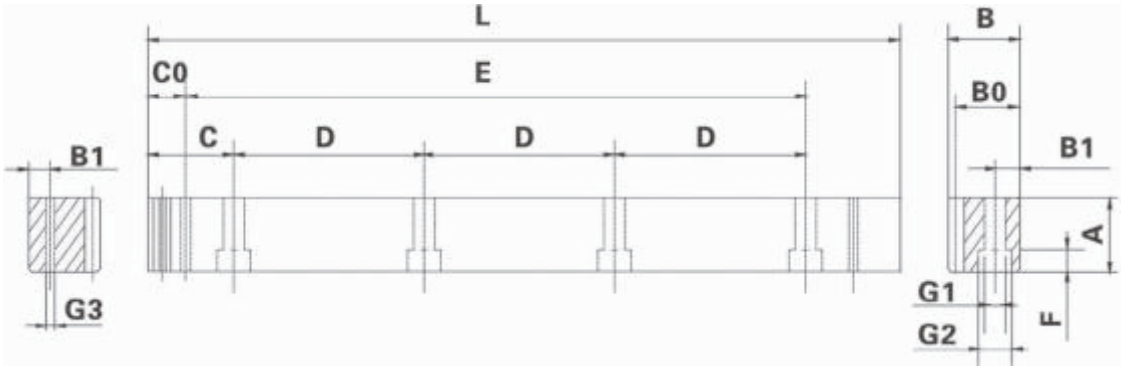


Código de pedido	Forma	N° de dientes	L	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SSGH / RSGH 1.51005	1.5	106	499.51	17	17	15.5	62.44	124.88	4	8	6	9.5	7	29.0	441.50	5.7
SSGH / RSGH 1.51005	1.5	212	999.03	17	17	15.5	62.44	124.88	8	8	6	9.5	7	29.0	941.00	5.7
020505 SSGH / RSGH	2.0	80	502.64	24	24	22	62.83	125.66	4	8	7	11	7	31.3	440.10	5.7
021005 SSGH / RSGH	2.0	160	1005.28	24	24	22	62.83	125.66	8	8	7	11	7	31.3	942.70	5.7
021505 SSGH / RSGH	2.0	240	1507.97	24	24	22	62.83	125.66	12	8	7	11	7	31.3	942.70	5.7
022005 SSGH / RSGH	2.0	320	2010.62	24	24	22	62.83	125.66	16	8	7	11	7	31.3	1948.00	5.7
030505 SSGH / RSGH	3.0	54	508.95	29	29	26	63.62	127.23	4	9	10	15	9	34.4	440.10	7.7
031005 SSGH / RSGH	3.0	108	1017.90	29	29	26	63.62	127.23	8	9	10	15	9	34.4	949.10	7.7
031505 SSGH / RSGH	3.0	162	1526.82	29	29	26	63.62	127.23	12	9	10	15	9	34.4	949.10	7.7
032005 SSGH / RSGH	3.0	216	2035.75	29	29	26	63.62	127.23	16	9	10	15	9	34.4	1967.00	7.7
040505 SSGH / RSGH	4.0	40	502.64	39	39	35	62.83	125.66	4	12	10	15	9	37.5	427.70	7.7
041005 SSGH / RSGH	4.0	80	1005.28	39	39	35	62.83	125.66	8	12	10	15	9	37.5	930.30	7.7
041505 SSGH / RSGH	4.0	120	1507.90	39	39	35	62.83	125.66	12	12	10	15	9	37.5	1432.90	7.7
042005 SSGH / RSGH	4.0	160	2010.62	39	39	35	62.83	125.66	16	12	10	15	9	37.5	1935.60	7.7
050505 SSGH / RSGH	5.0	32	502.65	49	39	34	62.83	125.66	4	12	14	20	13	30.1	442.40	11.7
051005 SSGH / RSGH	5.0	64	1005.31	49	39	34	62.83	125.66	8	12	14	20	13	30.1	945.00	11.7
060505 SSGH / RSGH	6.0	27	508.95	59	49	43	63.62	127.23	4	16	18	26	17	31.4	446.10	15.7
061005 SSGH / RSGH	6.0	54	1017.90	59	49	43	63.62	127.23	8	16	18	26	17	31.4	955.00	15.7
080505 SSGH / RSGH	8.0	20	502.64	79	79	71	62.83	125.66	4	25	22	33	21	26.6	449.50	19.7
081005 SSGH / RSGH	8.0	40	1005.28	79	79	71	62.83	125.66	8	25	22	33	21	26.6	952.00	19.7

Calidad	Din 6h25	Dureza	50 -55 HRC
Ángulo del diente	Recto 0°	Acabado del dentado	Rectificado
Ángulo de presión	20°	Acabado de las caras	Rectificado
Material	SSGH=C45E RSGH=42CrMn4	Tratamiento térmico	Endurecimiento por inducción en los dientes

TABLAS DIMENSIONALES

Calidad Q6
Serie SSGH/RSGH – Dientes rectos

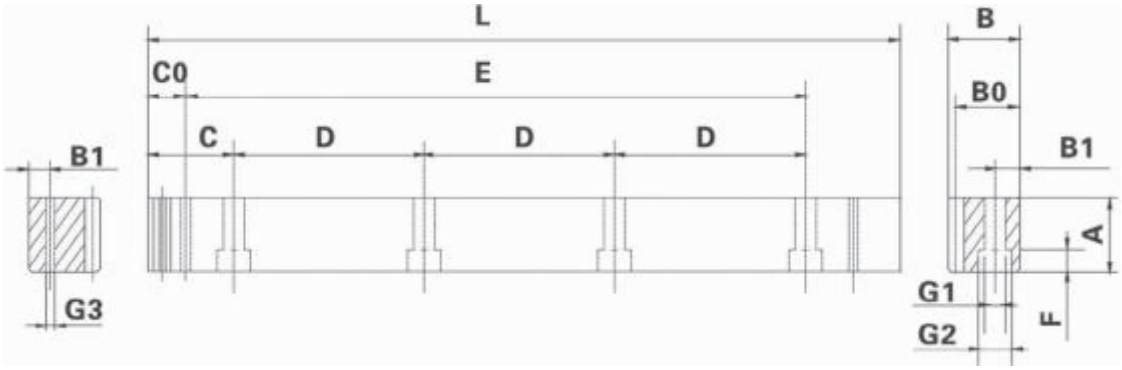


Código de pedido	Forma	N° de dientes	L	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SSGH / RSGH 1.50506	1.5	106	499.51	17	17	15.5	62.44	124.88	4	8	6	9.5	7	29.0	441.50	5.7
SSGH / RSGH 1.51006	1.5	212	999.03	17	17	15.5	62.44	124.88	8	8	6	9.5	7	29.0	941.00	5.7
020506 SSGH / RSGH	2.0	80	502.64	24	24	22	62.83	125.66	4	8	7	11	7	31.3	440.10	5.7
021006 SSGH / RSGH	2.0	160	1005.28	24	24	22	62.83	125.66	8	8	7	11	7	31.3	942.70	5.7
021506 SSGH / RSGH	2.0	240	1507.97	24	24	22	62.83	125.66	12	8	7	11	7	31.3	942.70	5.7
022006 SSGH / RSGH	2.0	320	2010.62	24	24	22	62.83	125.66	16	8	7	11	7	31.3	1948.00	5.7
030506 SSGH / RSGH	3.0	54	508.95	29	29	26	63.62	127.23	4	9	10	15	9	34.4	440.10	7.7
031006 SSGH / RSGH	3.0	108	1017.90	29	29	26	63.62	127.23	8	9	10	15	9	34.4	949.10	7.7
031506 SSGH / RSGH	3.0	162	1526.82	29	29	26	63.62	127.23	12	9	10	15	9	34.4	949.10	7.7
032006 SSGH / RSGH	3.0	216	2035.75	29	29	26	63.62	127.23	16	9	10	15	9	34.4	1967.00	7.7
040506 SSGH / RSGH	4.0	40	502.64	39	39	35	62.83	125.66	4	12	10	15	9	37.5	427.70	7.7
041006 SSGH / RSGH	4.0	80	1005.28	39	39	35	62.83	125.66	8	12	10	15	9	37.5	930.30	7.7
041506 SSGH / RSGH	4.0	120	1507.90	39	39	35	62.83	125.66	12	12	10	15	9	37.5	1432.90	7.7
042006 SSGH / RSGH	4.0	160	2010.62	39	39	35	62.83	125.66	16	12	10	15	9	37.5	1935.60	7.7
050506 SSGH / RSGH	5.0	32	502.65	49	39	34	62.83	125.66	4	12	14	20	13	30.1	442.40	11.7
051006 SSGH / RSGH	5.0	64	1005.31	49	39	34	62.83	125.66	8	12	14	20	13	30.1	945.00	11.7
060506 SSGH / RSGH	6.0	27	508.95	59	49	43	63.62	127.23	4	16	18	26	17	31.4	446.10	15.7
061006 SSGH / RSGH	6.0	54	1017.90	59	49	43	63.62	127.23	8	16	18	26	17	31.4	955.00	15.7
080506 SSGH / RSGH	8.0	20	502.64	79	79	71	62.83	125.66	4	25	22	33	21	26.6	449.50	19.7
081006 SSGH / RSGH	8.0	40	1005.28	79	79	71	62.83	125.66	8	25	22	33	21	26.6	952.00	19.7

Calidad	Din 6h25	Dureza	50 -55 HRC
Ángulo del diente	Recto 0°	Acabado del dentado	Rectificado
Ángulo de presión	20°	Acabado de las caras	Rectificado
Material	SSGH=C45E RSGH=42CrMn4	Tratamiento térmico	Endurecimiento por inducción en los dientes

TABLAS DIMENSIONALES

Calidad Q7
Serie SSFQ/RSFQ – Dientes rectos

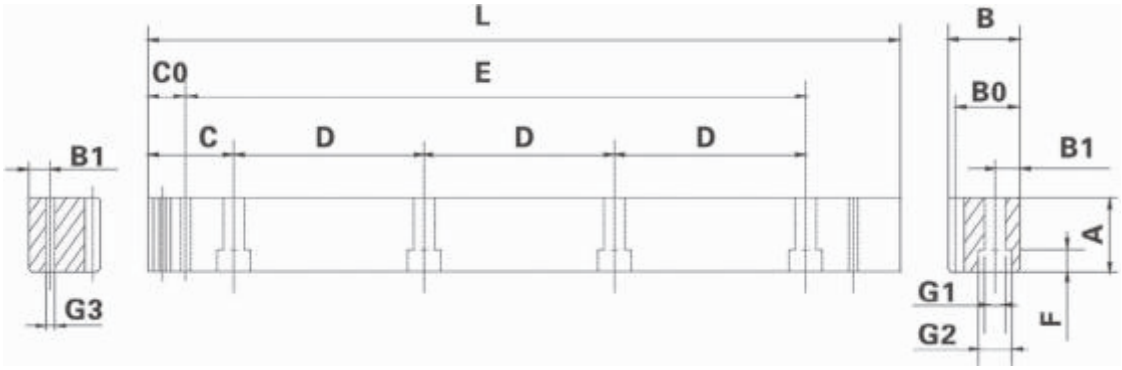


Código de pedido	Forma	N° de dientes	L	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SSFQ / RSFQ 1.50507	1.5	106	499.51	17	17	15.5	62.44	124.88	4	8	6	9.5	7	29.0	441.50	5.7
SSFQ / RSFQ 1.51007	1.5	212	999.03	17	17	15.5	62.44	124.88	8	8	6	9.5	7	29.0	941.00	5.7
020507 SSFQ / RSFQ	2.0	80	502.64	25	24	22	62.83	125.66	4	8	7	11	7	31.3	440.10	5.7
021007 SSFQ / RSFQ	2.0	160	1005.28	25	24	22	62.83	125.66	8	8	7	11	7	31.3	942.70	5.7
021507 SSFQ / RSFQ	2.0	240	1507.97	25	24	22	62.83	125.66	12	8	7	11	7	31.3	942.70	5.7
022007 SSFQ / RSFQ	2.0	320	2010.62	25	24	22	62.83	125.66	16	8	7	11	7	31.3	1948.00	5.7
030507 SSFQ / RSFQ	3.0	54	508.95	30	29	26	63.62	127.23	4	9	10	15	9	34.4	440.10	7.7
031007 SSFQ / RSFQ	3.0	108	1017.90	30	29	26	63.62	127.23	8	9	10	15	9	34.4	949.10	7.7
031507 SSFQ / RSFQ	3.0	162	1526.82	30	29	26	63.62	127.23	12	9	10	15	9	34.4	949.10	7.7
032006 SSFQ / RSFQ	3.0	216	2035.75	30	29	26	63.62	127.23	16	9	10	15	9	34.4	1967.00	7.7
040506 SSFQ / RSFQ	4.0	40	502.64	40	39	35	62.83	125.66	4	12	10	15	9	37.5	427.70	7.7
041006 SSFQ / RSFQ	4.0	80	1005.28	40	39	35	62.83	125.66	8	12	10	15	9	37.5	930.30	7.7
041506 SSFQ / RSFQ	4.0	120	1507.90	40	39	35	62.83	125.66	12	12	10	15	9	37.5	1432.90	7.7
042006 SSFQ / RSFQ	4.0	160	2010.62	40	39	35	62.83	125.66	16	12	10	15	9	37.5	1935.60	7.7
050506 SSFQ / RSFQ	5.0	32	502.65	50	39	34	62.83	125.66	4	12	14	20	13	30.1	442.40	11.7
051006 SSFQ / RSFQ	5.0	64	1005.31	50	39	34	62.83	125.66	8	12	14	20	13	30.1	945.00	11.7
060506 SSFQ / RSFQ	6.0	27	508.95	59	49	43	63.62	127.23	4	16	18	26	17	31.4	446.10	15.7
061006 SSFQ / RSFQ	6.0	54	1017.90	59	49	43	63.62	127.23	8	16	18	26	17	31.4	955.00	15.7
080506 SSFQ / RSFQ	8.0	20	502.64	79	79	71	62.83	125.66	4	25	22	33	21	26.6	449.50	19.7
081006 SSFQ / RSFQ	8.0	40	1005.28	79	79	71	62.83	125.66	8	25	22	33	21	26.6	952.00	19.7

Calidad	Din 7e25	Dureza	15-20 HRC
Ángulo del diente	Recto 0°	Acabado del dentado	Rectificado
Ángulo de presión	20°	Acabado de las caras	Fresado
Material	SSFQ=C45E RSFQ=42CrMn4	Tratamiento térmico	Bonificado

TABLAS DIMENSIONALES

Calidad Q8
Serie SSFQ/RSFQ – Dientes rectos

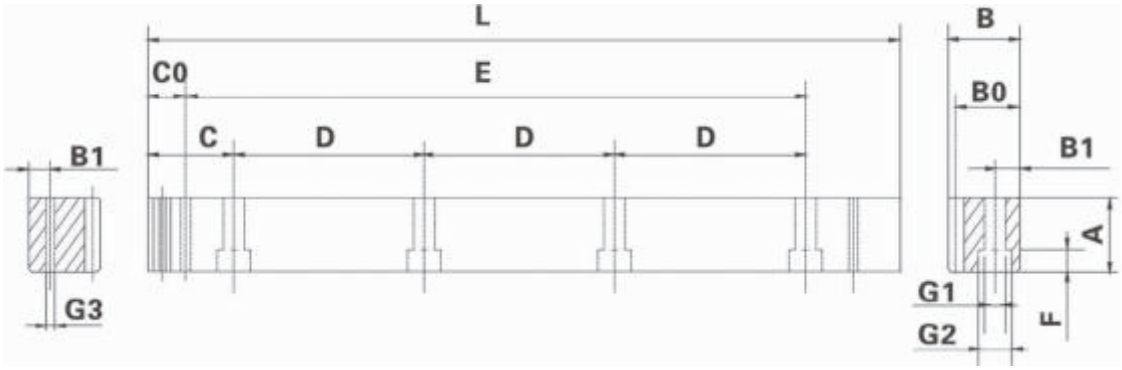


Código de pedido	Forma	N° de dientes	L	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SSFQ / RSFQ 1.50508	1.5	106	499.51	17	17	15.5	62.44	124.88	4	8	6	9.5	7	29.0	441.50	5.7
SSFQ / RSFQ 1.51008	1.5	212	999.03	17	17	15.5	62.44	124.88	8	8	6	9.5	7	29.0	941.00	5.7
020508 SSFQ / RSFQ	2.0	80	502.64	25	24	22	62.83	125.66	4	8	7	11	7	31.3	440.10	5.7
021008 SSFQ / RSFQ	2.0	160	1005.28	25	24	22	62.83	125.66	8	8	7	11	7	31.3	942.70	5.7
021508 SSFQ / RSFQ	2.0	240	1507.97	25	24	22	62.83	125.66	12	8	7	11	7	31.3	942.70	5.7
022008 SSFQ / RSFQ	2.0	320	2010.62	25	24	22	62.83	125.66	16	8	7	11	7	31.3	1948.00	5.7
030508 SSFQ / RSFQ	3.0	54	508.95	30	29	26	63.62	127.23	4	9	10	15	9	34.4	440.10	7.7
031008 SSFQ / RSFQ	3.0	108	1017.90	30	29	26	63.62	127.23	8	9	10	15	9	34.4	949.10	7.7
031508 SSFQ / RSFQ	3.0	162	1526.82	30	29	26	63.62	127.23	12	9	10	15	9	34.4	949.10	7.7
032008 SSFQ / RSFQ	3.0	216	2035.75	30	29	26	63.62	127.23	16	9	10	15	9	34.4	1967.00	7.7
040508 SSFQ / RSFQ	4.0	40	502.64	40	39	35	62.83	125.66	4	12	10	15	9	37.5	427.70	7.7
041008 SSFQ / RSFQ	4.0	80	1005.28	40	39	35	62.83	125.66	8	12	10	15	9	37.5	930.30	7.7
041508 SSFQ / RSFQ	4.0	120	1507.90	40	39	35	62.83	125.66	12	12	10	15	9	37.5	1432.90	7.7
042008 SSFQ / RSFQ	4.0	160	2010.62	40	39	35	62.83	125.66	16	12	10	15	9	37.5	1935.60	7.7
050508 SSFQ / RSFQ	5.0	32	502.65	50	39	34	62.83	125.66	4	12	14	20	13	30.1	442.40	11.7
051008 SSFQ / RSFQ	5.0	64	1005.31	50	39	34	62.83	125.66	8	12	14	20	13	30.1	945.00	11.7
060508 SSFQ / RSFQ	6.0	27	508.95	59	49	43	63.62	127.23	4	16	18	26	17	31.4	446.10	15.7
061008 SSFQ / RSFQ	6.0	54	1017.90	59	49	43	63.62	127.23	8	16	18	26	17	31.4	955.00	15.7
080508 SSFQ / RSFQ	8.0	20	502.64	79	79	71	62.83	125.66	4	25	22	33	21	26.6	449.50	19.7
081008 SSFQ / RSFQ	8.0	40	1005.28	79	79	71	62.83	125.66	8	25	22	33	21	26.6	952.00	19.7

Calidad	Din 8e27	Dureza	15-20 HRC
Ángulo del diente	Recto 0°	Acabado del dentado	Fresado
Ángulo de presión	20°	Acabado de las caras	Fresado
Material	SSFQ=C45E RSFQ=42CrMn4	Tratamiento térmico	Bonificado

TABLAS DIMENSIONALES

Calidad Q9
Serie SSF Dientes rectos

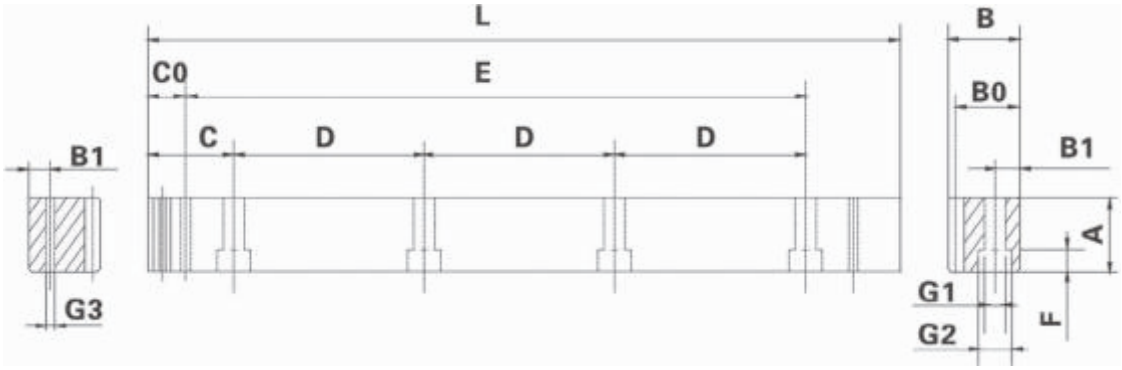


Código de pedido	Forma	N° de dientes	L	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SSF 1.50509	1.5	106	499.51	17	17	15.5	62.44	124.88	4	8	6	9.5	7	29.0	441.50	5.7
SSF 1.51009	1.5	212	999.03	17	17	15.5	62.44	124.88	8	8	6	9.5	7	29.0	941.00	5.7
020509 SSF	2.0	80	502.64	24	24	22	62.83	125.66	4	8	7	11	7	31.3	440.10	5.7
021009 SSF	2.0	160	1005.28	24	24	22	62.83	125.66	8	8	7	11	7	31.3	942.70	5.7
021509 SSF	2.0	240	1507.97	24	24	22	62.83	125.66	12	8	7	11	7	31.3	942.70	5.7
022009 SSF	2.0	320	2010.62	24	24	22	62.83	125.66	16	8	7	11	7	31.3	1948.00	5.7
030509 SSF	3.0	54	508.95	29	29	26	63.62	127.23	4	9	10	15	9	34.4	440.10	7.7
031009 SSF	3.0	108	1017.90	29	29	26	63.62	127.23	8	9	10	15	9	34.4	949.10	7.7
031509 de SSF	3.0	162	1526.82	29	29	26	63.62	127.23	12	9	10	15	9	34.4	949.10	7.7
032009 SSF	3.0	216	2035.75	29	29	26	63.62	127.23	16	9	10	15	9	34.4	1967.00	7.7
040509 SSF	4.0	40	502.64	39	39	35	62.83	125.66	4	12	10	15	9	37.5	427.70	7.7
041009 SSF	4.0	80	1005.28	39	39	35	62.83	125.66	8	12	10	15	9	37.5	930.30	7.7
041509 SSF	4.0	120	1507.90	39	39	35	62.83	125.66	12	12	10	15	9	37.5	1432.90	7.7
042009 SSF	4.0	160	2010.62	39	39	35	62.83	125.66	16	12	10	15	9	37.5	1935.60	7.7
050509 SSF	5.0	32	502.65	49	39	34	62.83	125.66	4	12	14	20	13	30.1	442.40	11.7
051009 SSF	5.0	64	1005.31	49	39	34	62.83	125.66	8	12	14	20	13	30.1	945.00	11.7
060509 SSF	6.0	27	508.95	59	49	43	63.62	127.23	4	16	18	26	17	31.4	446.10	15.7
061009 SSF	6.0	54	1017.90	59	49	43	63.62	127.23	8	16	18	26	17	31.4	955.00	15.7
080509 SSF	8.0	20	502.64	79	79	71	62.83	125.66	4	25	22	33	21	26.6	449.50	19.7
081009 de SSF	8.0	40	1005.28	79	79	71	62.83	125.66	8	25	22	33	21	26.6	952.00	19.7

Calidad	Din 9e27	Dureza	Menos de 15 HRC
Ángulo del diente	Recto 0°	Acabado del dentado	Fresado
Ángulo de presión	20°	Acabado de las caras	Fresado
Material	SSF=C45E	Tratamiento térmico	Sin tratamiento

TABLAS DIMENSIONALES

Calidad Q10
Serie SSFH/RSFH – Dientes rectos

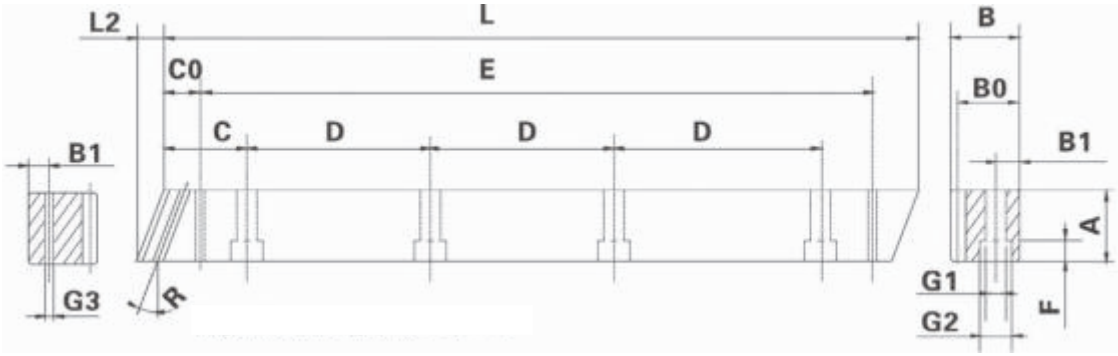


Código de pedido	Forma	N° de dientes	L	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SSFH / RSFH 1.50510	1.5	106	499.51	17	17	15.5	62.44	124.88	4	8	6	9.5	7	29.0	441.50	5.7
SSFH / RSFH 1.51010	1.5	212	999.03	17	17	15.5	62.44	124.88	8	8	6	9.5	7	29.0	941.00	5.7
SSFH / RSFH 020510	2.0	80	502.64	24	24	22	62.83	125.66	4	8	7	11	7	31.3	440.10	5.7
SSFH / RSFH 021010	2.0	160	1005.28	24	24	22	62.83	125.66	8	8	7	11	7	31.3	942.70	5.7
SSFH / RSFH 021510	2.0	240	1507.97	24	24	22	62.83	125.66	12	8	7	11	7	31.3	942.70	5.7
SSFH / RSFH 022010	2.0	320	2010.62	24	24	22	62.83	125.66	16	8	7	11	7	31.3	1948.00	5.7
SSFH / RSFH 030510	3.0	54	508.95	29	29	26	63.62	127.23	4	9	10	15	9	34.4	440.10	7.7
SSFH / RSFH 031010	3.0	108	1017.90	29	29	26	63.62	127.23	8	9	10	15	9	34.4	949.10	7.7
SSFH / RSFH 031510	3.0	162	1526.82	29	29	26	63.62	127.23	12	9	10	15	9	34.4	949.10	7.7
SSFH / RSFH 032010	3.0	216	2035.75	29	29	26	63.62	127.23	16	9	10	15	9	34.4	1967.00	7.7
SSFH / RSFH 040510	4.0	40	502.64	39	39	35	62.83	125.66	4	12	10	15	9	37.5	427.70	7.7
SSFH / RSFH 041010	4.0	80	1005.28	39	39	35	62.83	125.66	8	12	10	15	9	37.5	930.30	7.7
SSFH / RSFH 041510	4.0	120	1507.90	39	39	35	62.83	125.66	12	12	10	15	9	37.5	1432.90	7.7
SSFH / RSFH 042010	4.0	160	2010.62	39	39	35	62.83	125.66	16	12	10	15	9	37.5	1935.60	7.7
SSFH / RSFH 050510	5.0	32	502.65	49	39	34	62.83	125.66	4	12	14	20	13	30.1	442.40	11.7
SSFH / RSFH 051010	5.0	64	1005.31	49	39	34	62.83	125.66	8	12	14	20	13	30.1	945.00	11.7
060509 SSFH / RSFH	6.0	27	508.95	59	49	43	63.62	127.23	4	16	18	26	17	31.4	446.10	15.7
061009 SSFH / RSFH	6.0	54	1017.90	59	49	43	63.62	127.23	8	16	18	26	17	31.4	955.00	15.7
080509 SSFH / RSFH	8.0	20	502.64	79	79	71	62.83	125.66	4	25	22	33	21	26.6	449.50	19.7
081009 SSFH / RSFH	8.0	40	1005.28	79	79	71	62.83	125.66	8	25	22	33	21	26.6	952.00	19.7

Calidad	D.10e27	Dureza	15 -55 HRC
Ángulo del diente	Recto 0°	Acabado del dentado	Fresado
Ángulo de presión	20°	Acabado de las caras	Fresado
Material	SSFH=C45E RSFH=42CrMn4	Tratamiento térmico	Endurecimiento por inducción

TABLAS DIMENSIONALES

Calidad Q5
Serie SHGH/RHGH – Dientes helicoidales

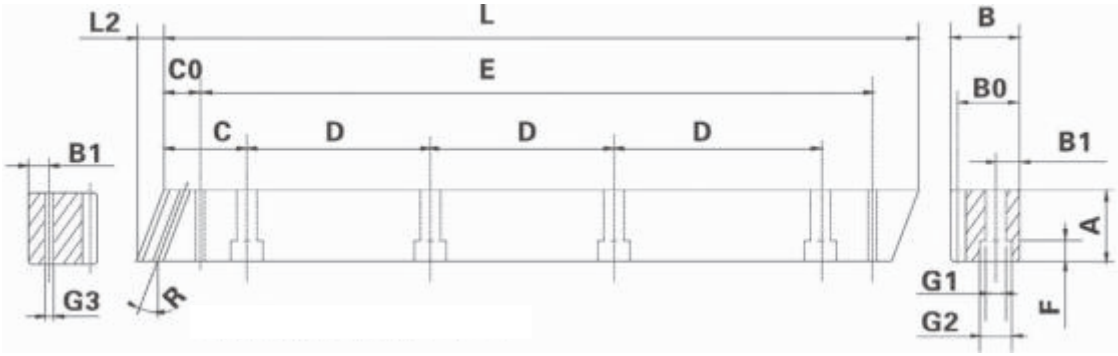


Código de pedido	Modulo	N° de dientes	L	L2	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SHGH / RHGH 1.50505	1.5	100	500.00	6.00	17	17	15.5	62.50	125	4	8	6	9.5	7	31.7	436.60	5.7
SHGH / RHGH 1.51005	1.5	200	1000.00	6.00	17	17	15.5	62.50	125	8	8	6	9.5	7	31.7	936.60	5.7
SHGH / RHGH 020505	2.0	75	500.00	8.50	24	24	22	62.50	125	4	8	7	11	7	31.7	436.60	5.7
SHGH / RHGH 021005	2.0	150	1000.00	8.50	24	24	22	62.50	125	8	8	7	11	7	31.7	936.60	5.7
SHGH / RHGH 021505	2.0	225	1500.00	8.50	24	24	22	62.50	125	12	8	7	11	7	31.7	1436.60	5.7
SHGH / RHGH 022005	2.0	300	2000.00	8.50	24	24	22	62.50	125	16	8	7	11	7	31.7	1936.60	5.7
SHGH / RHGH 030505	3.0	50	500.00	10.30	29	29	26	62.50	125	4	9	10	15	9	35.0	430.00	7.7
SHGH / RHGH 031005	3.0	100	1000.00	10.30	29	29	26	62.50	125	8	9	10	15	9	35.0	930.00	7.7
SHGH / RHGH 031505	3.0	150	1500.00	10.30	29	29	26	62.50	125	12	9	10	15	9	35.0	1430.00	7.7
SHGH / RHGH 032005	3.0	200	2000.00	10.30	29	29	26	62.50	125	16	9	10	15	9	35.0	1930.00	7.7
SHGH / RHGH 040505	4.0	38	506.67	13.80	39	39	35	62.50	125	4	12	10	15	9	33.3	433.00	7.7
SHGH / RHGH 041005	4.0	75	1000.00	13.80	39	39	35	62.50	125	8	12	10	15	9	33.3	933.40	7.7
SHGH / RHGH 041505	4.0	113	1506.67	13.80	39	39	35	62.50	125	12	12	10	15	9	33.3	1440.10	7.7
SHGH / RHGH 042005	4.0	150	2000.00	13.80	39	39	35	62.50	125	16	12	10	15	9	33.3	1933.40	7.7
SHGH / RHGH 050505	5.0	30	500.00	17.40	49	39	34	62.50	125	4	12	14	20	13	37.5	425.00	11.7
SHGH / RHGH 051005	5.0	60	1000.00	17.40	49	39	34	62.50	125	8	12	14	20	13	37.5	925.00	11.7
SHGH / RHGH 060505	6.0	25	500.00	20.90	59	49	43	62.50	125	4	16	18	26	17	37.5	425.00	15.7
SHGH / RHGH 061005	6.0	50	1000.00	20.90	59	49	43	62.50	125	8	16	18	26	17	37.5	925.00	15.7
SHGH / RHGH 080505	8.0	18	480.00	28.00	79	79	71	60.00	120	4	25	22	33	21	120.0	240.00	17.7
SHGH / RHGH 081005	8.0	36	960.00	28.00	79	79	71	60.00	120	8	25	22	33	21	120.0	720.00	17.7

Calidad	Din 5h22	Dureza	50 -55 HRC
Ángulo del diente	Helicoidal derecho 19° 31' 42"	Acabado del dentado	Rectificado
Ángulo de presión	20°	Acabado de las caras	Rectificado
Material	SHGH=C45E RHGH=42CrMn4	Tratamiento térmico	Endurecimiento por inducción

TABLAS DIMENSIONALES

Calidad Q6
Serie SHGH/RHGH – Dientes helicoidales

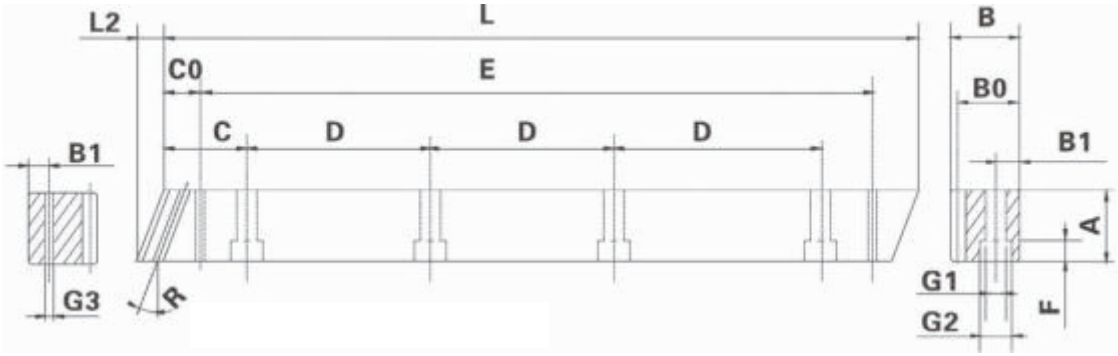


Código de pedido	Modulo	N° de dientes	L	L2	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SHGH / RHGH 1.50506	1.5	100	500.00	6.00	17	17	15.5	62.50	125	4	8	6	9.5	7	31.7	436.60	5.7
SHGH / RHGH 1.51006	1.5	200	1000.00	6.00	17	17	15.5	62.50	125	8	8	6	9.5	7	31.7	936.60	5.7
SHGH / RHGH 020506	2.0	75	500.00	8.50	24	24	22	62.50	125	4	8	7	11	7	31.7	436.60	5.7
SHGH / RHGH 021006	2.0	150	1000.00	8.50	24	24	22	62.50	125	8	8	7	11	7	31.7	936.60	5.7
SHGH / RHGH 021506	2.0	225	1500.00	8.50	24	24	22	62.50	125	12	8	7	11	7	31.7	1436.60	5.7
SHGH / RHGH 022006	2.0	300	2000.00	8.50	24	24	22	62.50	125	16	8	7	11	7	31.7	1936.60	5.7
SHGH / RHGH 030506	3.0	50	500.00	10.30	29	29	26	62.50	125	4	9	10	15	9	35.0	430.00	7.7
SHGH / RHGH 031006	3.0	100	1000.00	10.30	29	29	26	62.50	125	8	9	10	15	9	35.0	930.00	7.7
SHGH / RHGH 031506	3.0	150	1500.00	10.30	29	29	26	62.50	125	12	9	10	15	9	35.0	1430.00	7.7
SHGH / RHGH 032006	3.0	200	2000.00	10.30	29	29	26	62.50	125	16	9	10	15	9	35.0	1930.00	7.7
SHGH / RHGH 040506	4.0	38	506.67	13.80	39	39	35	62.50	125	4	12	10	15	9	33.3	433.00	7.7
SHGH / RHGH 041006	4.0	75	1000.00	13.80	39	39	35	62.50	125	8	12	10	15	9	33.3	933.40	7.7
SHGH / RHGH 041506	4.0	113	1506.67	13.80	39	39	35	62.50	125	12	12	10	15	9	33.3	1440.10	7.7
SHGH / RHGH 042006	4.0	150	2000.00	13.80	39	39	35	62.50	125	16	12	10	15	9	33.3	1933.40	7.7
SHGH / RHGH 050506	5.0	30	500.00	17.40	49	39	34	62.50	125	4	12	14	20	13	37.5	425.00	11.7
SHGH / RHGH 051006	5.0	60	1000.00	17.40	49	39	34	62.50	125	8	12	14	20	13	37.5	925.00	11.7
SHGH / RHGH 060506	6.0	25	500.00	20.90	59	49	43	62.50	125	4	16	18	26	17	37.5	425.00	15.7
SHGH / RHGH 061006	6.0	50	1000.00	20.90	59	49	43	62.50	125	8	16	18	26	17	37.5	925.00	15.7
SHGH / RHGH 080506	8.0	18	480.00	28.00	79	79	71	60.00	120	4	25	22	33	21	120.0	240.00	17.7
SHGH / RHGH 081006	8.0	36	960.00	28.00	79	79	71	60.00	120	8	25	22	33	21	120.0	720.00	17.7

Calidad	Din 6h25	Dureza	50 -55 HRC
Ángulo del diente	Helicoidal derecho 19° 31' 42"	Acabado del dentado	Rectificado
Ángulo de presión	20°		Rectificado
Material	SHGH=C45E RHGH=42CrMn4	Tratamiento térmico	Endurecimiento por inducción

TABLAS DIMENSIONALES

Calidad Q7
Serie SHFQ/RHFQ – Dientes helicoidales

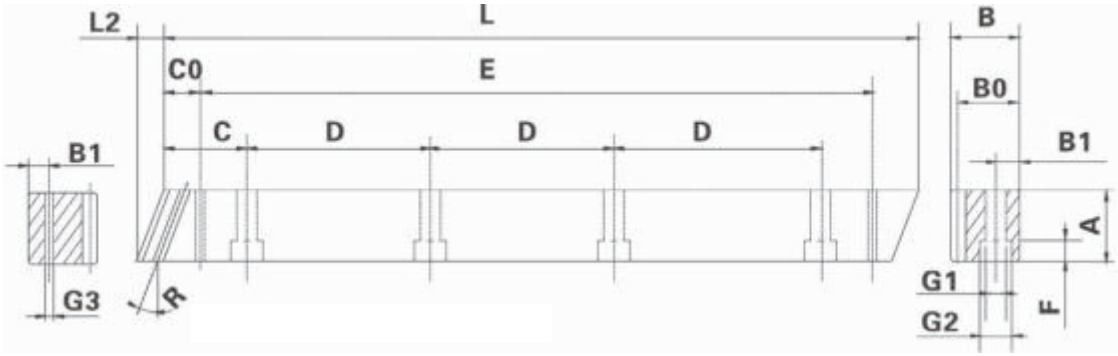


Código de pedido	Modulo	N° de dientes	L	L2	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SHFQ / RHFQ 1.50507	1.5	100	500.00	6.00	17	17	15.5	62.50	125	4	8	6	9.5	7	31.7	436.60	5.7
SHFQ / RHFQ 1.51007	1.5	200	1000.00	6.00	17	17	15.5	62.50	125	8	8	6	9.5	7	31.7	936.60	5.7
020507 SHFQ / RHFQ	2.0	75	500.00	8.90	24	24	22	62.50	125	4	8	7	11	7	31.7	436.60	5.7
021007 SHFQ / RHFQ	2.0	150	1000.00	8.90	24	24	22	62.50	125	8	8	7	11	7	31.7	936.60	5.7
021507 SHFQ / RHFQ	2.0	225	1500.00	8.90	24	24	22	62.50	125	12	8	7	11	7	31.7	1436.60	5.7
022007 SHFQ / RHFQ	2.0	300	2000.00	8.90	24	24	22	62.50	125	16	8	7	11	7	31.7	1936.60	5.7
030507 SHFQ / RHFQ	3.0	50	500.00	10.60	30	29	26	62.50	125	4	9	10	15	9	35.0	430.00	7.7
031007 SHFQ / RHFQ	3.0	100	1000.00	10.60	30	29	26	62.50	125	8	9	10	15	9	35.0	930.00	7.7
031507 SHFQ / RHFQ	3.0	150	1500.00	10.60	30	29	26	62.50	125	12	9	10	15	9	35.0	1430.00	7.7
032006 SHFQ / RHFQ	3.0	200	2000.00	10.60	30	29	26	62.50	125	16	9	10	15	9	35.0	1930.00	7.7
040506 SHFQ / RHFQ	4.0	38	506.67	14.20	40	39	35	62.50	125	4	12	10	15	9	33.3	433.00	7.7
041006 SHFQ / RHFQ	4.0	75	1000.00	14.20	40	39	35	62.50	125	8	12	10	15	9	33.3	933.40	7.7
041506 SHFQ / RHFQ	4.0	113	1506.67	14.20	40	39	35	62.50	125	12	12	10	15	9	33.3	1440.10	7.7
042006 SHFQ / RHFQ	4.0	150	2000.00	14.20	40	39	35	62.50	125	16	12	10	15	9	33.3	1933.40	7.7
050506 SHFQ / RHFQ	5.0	30	500.00	17.70	50	39	34	62.50	125	4	12	14	20	13	37.5	425.00	11.7
051006 SHFQ / RHFQ	5.0	60	1000.00	17.70	50	39	34	62.50	125	8	12	14	20	13	37.5	925.00	11.7
060506 SHFQ / RHFQ	6.0	25	500.00	20.90	59	49	43	62.50	125	4	16	18	26	17	37.5	425.00	15.7
061006 SHFQ / RHFQ	6.0	50	1000.00	20.90	59	49	43	62.50	125	8	16	18	26	17	37.5	925.00	15.7
080506 SHFQ / RHFQ	8.0	18	480.00	28.00	79	79	71	60.00	120	4	25	22	33	21	120.0	240.00	17.7
081006 SHFQ / RHFQ	8.0	36	960.00	28.00	79	79	71	60.00	120	8	25	22	33	21	120.0	720.00	17.7

Calidad	Din 7e25	Dureza	15-20 HRC
Ángulo del diente	Helicoidal derecho 19° 31' 42"	Acabado del dentado	Rectificado
Ángulo de presión	20°	Acabado de las caras	Fresado
Material	SHFQ=45E RHFQ=42CrMn4	Tratamiento térmico	Bonificado

TABLAS DIMENSIONALES

Calidad Q8
Serie SHFQ/RHFQ – Dientes helicoidales

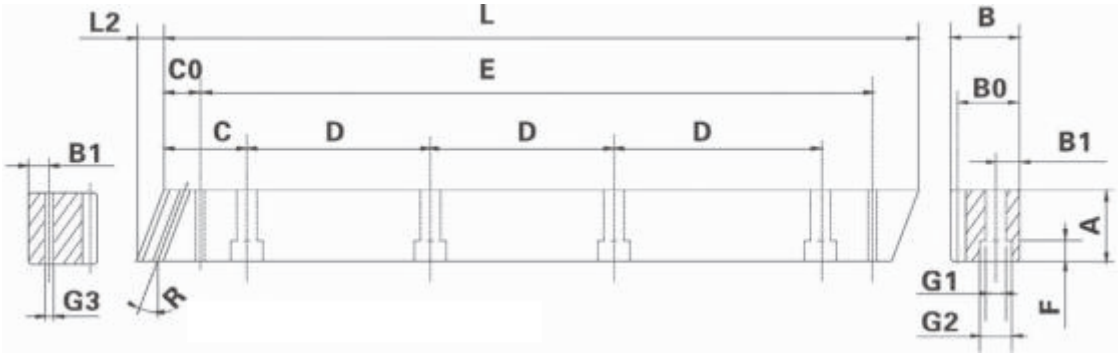


Código de pedido	Modulo	N° de dientes	L	L2	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SHFQ / RHFQ 1.50508	1.5	100	500.00	6.00	17	17	15.5	62.50	125	4	8	6	9.5	7	31.7	436.60	5.7
SHFQ / RHFQ 1.51008	1.5	200	1000.00	6.00	17	17	15.5	62.50	125	8	8	6	9.5	7	31.7	936.60	5.7
020508 SHFQ / RHFQ	2.0	75	500.00	8.90	24	24	22	62.50	125	4	8	7	11	7	31.7	436.60	5.7
021008 SHFQ / RHFQ	2.0	150	1000.00	8.90	24	24	22	62.50	125	8	8	7	11	7	31.7	936.60	5.7
021508 SHFQ / RHFQ	2.0	225	1500.00	8.90	24	24	22	62.50	125	12	8	7	11	7	31.7	1436.60	5.7
022008 SHFQ / RHFQ	2.0	300	2000.00	8.90	24	24	22	62.50	125	16	8	7	11	7	31.7	1936.60	5.7
030508 SHFQ / RHFQ	3.0	50	500.00	10.60	30	29	26	62.50	125	4	9	10	15	9	35.0	430.00	7.7
031008 SHFQ / RHFQ	3.0	100	1000.00	10.60	30	29	26	62.50	125	8	9	10	15	9	35.0	930.00	7.7
031508 SHFQ / RHFQ	3.0	150	1500.00	10.60	30	29	26	62.50	125	12	9	10	15	9	35.0	1430.00	7.7
032008 SHFQ / RHFQ	3.0	200	2000.00	10.60	30	29	26	62.50	125	16	9	10	15	9	35.0	1930.00	7.7
040508 SHFQ / RHFQ	4.0	38	506.67	14.20	40	39	35	62.50	125	4	12	10	15	9	33.3	433.00	7.7
041008 SHFQ / RHFQ	4.0	75	1000.00	14.20	40	39	35	62.50	125	8	12	10	15	9	33.3	933.40	7.7
041508 SHFQ / RHFQ	4.0	113	1506.67	14.20	40	39	35	62.50	125	12	12	10	15	9	33.3	1440.10	7.7
042008 SHFQ / RHFQ	4.0	150	2000.00	14.20	40	39	35	62.50	125	16	12	10	15	9	33.3	1933.40	7.7
050508 SHFQ / RHFQ	5.0	30	500.00	17.70	50	39	34	62.50	125	4	12	14	20	13	37.5	425.00	11.7
051008 SHFQ / RHFQ	5.0	60	1000.00	17.70	50	39	34	62.50	125	8	12	14	20	13	37.5	925.00	11.7
060508 SHFQ / RHFQ	6.0	25	500.00	20.90	59	49	43	62.50	125	4	16	18	26	17	37.5	425.00	15.7
061008 SHFQ / RHFQ	6.0	50	1000.00	20.90	59	49	43	62.50	125	8	16	18	26	17	37.5	925.00	15.7
080508 SHFQ / RHFQ	8.0	18	480.00	28.00	79	79	71	60.00	120	4	25	22	33	21	120.0	240.00	17.7
081008 SHFQ / RHFQ	8.0	36	960.00	28.00	79	79	71	60.00	120	8	25	22	33	21	120.0	720.00	17.7

Calidad	Din 8e27	Dureza	15 -20 HRC
Ángulo del diente	Helicoidal derecho 19° 31' 42"	Acabado del dentado	Fresado
Ángulo de presión	20°	Acabado de las caras	Fresado
Material	SHFQ=C45E RHFQ=42CrMn4	Tratamiento térmico	Bonificado

TABLAS DIMENSIONALES

Calidad Q9
Serie SHF – Dientes helicoidales

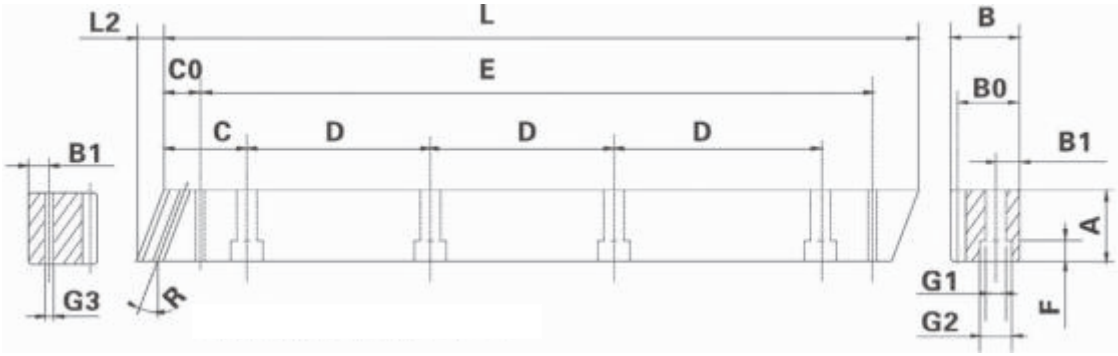


Código de pedido	Mo dulo	N° de dientes	L	L2	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SHF 1.50509	1.5	100	500.00	6.00	17	17	15.5	62.50	125	4	8	6	9.5	7	31.7	436.60	5.7
SHF 1.51009	1.5	200	1000.00	6.00	17	17	15.5	62.50	125	8	8	6	9.5	7	31.7	936.60	5.7
020509 SHF	2.0	75	500.00	8.50	24	24	22	62.50	125	4	8	7	11	7	31.7	436.60	5.7
021009 SHF	2.0	150	1000.00	8.50	24	24	22	62.50	125	8	8	7	11	7	31.7	936.60	5.7
021509 SHF	2.0	225	1500.00	8.50	24	24	22	62.50	125	12	8	7	11	7	31.7	1436.60	5.7
022009 SHF	2.0	300	2000.00	8.50	24	24	22	62.50	125	16	8	7	11	7	31.7	1936.60	5.7
030509 SHF	3.0	50	500.00	10.30	29	29	26	62.50	125	4	9	10	15	9	35.0	430.00	7.7
031009 SHF	3.0	100	1000.00	10.30	29	29	26	62.50	125	8	9	10	15	9	35.0	930.00	7.7
031509 SHF	3.0	150	1500.00	10.30	29	29	26	62.50	125	12	9	10	15	9	35.0	1430.00	7.7
032009 SHF	3.0	200	2000.00	10.30	29	29	26	62.50	125	16	9	10	15	9	35.0	1930.00	7.7
040509 SHF	4.0	38	506.67	13.80	39	39	35	62.50	125	4	12	10	15	9	33.3	433.00	7.7
041009 SHF	4.0	75	1000.00	13.80	39	39	35	62.50	125	8	12	10	15	9	33.3	933.40	7.7
041509 SHF	4.0	113	1506.67	13.80	39	39	35	62.50	125	12	12	10	15	9	33.3	1440.10	7.7
042009 SHF	4.0	150	2000.00	13.80	39	39	35	62.50	125	16	12	10	15	9	33.3	1933.40	7.7
050509 SHF	5.0	30	500.00	17.40	49	39	34	62.50	125	4	12	14	20	13	37.5	425.00	11.7
051009 SHF	5.0	60	1000.00	17.40	49	39	34	62.50	125	8	12	14	20	13	37.5	925.00	11.7
060509 SHF	6.0	25	500.00	20.90	59	49	43	62.50	125	4	16	18	26	17	37.5	425.00	15.7
061009 SHF	6.0	50	1000.00	20.90	59	49	43	62.50	125	8	16	18	26	17	37.5	925.00	15.7
080509 SHF	8.0	18	480.00	28.00	79	79	71	60.00	120	4	25	22	33	21	120.0	240.00	17.7
081009 SHF	8.0	36	960.00	28.00	79	79	71	60.00	120	8	25	22	33	21	120.0	720.00	17.7

Calidad	Din 9e27	Dureza	Menos de 15 HRC
Ángulo del diente	Helicoidal derecho 19° 31' 42"	Acabado del dentado	Fresado
Ángulo de presión	20°	Acabado de las caras	Fresado
Material	SHF=C45E	Tratamiento térmico	Ninguno

TABLAS DIMENSIONALES

Calidad Q10
Serie SHFH/RHFH – Dientes helicoidales



Código de pedido	Modulo	N° de dientes	L	L2	Un	B	B0	C	D	No. de agujeros	B1	G1	G2	F	C0	Y	G3
SHFH / RHFH 1.50510	1.5	100	500.00	6.00	17	17	15.5	62.50	125	4	8	6	9.5	7	31.7	436.60	5.7
SHFH / RHFH 1.51010	1.5	200	1000.00	6.00	17	17	15.5	62.50	125	8	8	6	9.5	7	31.7	936.60	5.7
SHFH / RHFH 020510	2.0	75	500.00	8.50	24	24	22	62.50	125	4	8	7	11	7	31.7	436.60	5.7
SHFH / RHFH 021010	2.0	150	1000.00	8.50	24	24	22	62.50	125	8	8	7	11	7	31.7	936.60	5.7
SHFH / RHFH 021510	2.0	225	1500.00	8.50	24	24	22	62.50	125	12	8	7	11	7	31.7	1436.60	5.7
SHFH / RHFH 022010	2.0	300	2000.00	8.50	24	24	22	62.50	125	16	8	7	11	7	31.7	1936.60	5.7
SHFH / RHFH 030510	3.0	50	500.00	10.30	29	29	26	62.50	125	4	9	10	15	9	35.0	430.00	7.7
SHFH / RHFH 031010	3.0	100	1000.00	10.30	29	29	26	62.50	125	8	9	10	15	9	35.0	930.00	7.7
SHFH / RHFH 031510	3.0	150	1500.00	10.30	29	29	26	62.50	125	12	9	10	15	9	35.0	1430.00	7.7
SHFH / RHFH 032010	3.0	200	2000.00	10.30	29	29	26	62.50	125	16	9	10	15	9	35.0	1930.00	7.7
SHFH / RHFH 040510	4.0	38	506.67	13.80	39	39	35	62.50	125	4	12	10	15	9	33.3	433.00	7.7
SHFH / RHFH 041010	4.0	75	1000.00	13.80	39	39	35	62.50	125	8	12	10	15	9	33.3	933.40	7.7
SHFH / RHFH 041510	4.0	113	1506.67	13.80	39	39	35	62.50	125	12	12	10	15	9	33.3	1440.10	7.7
SHFH / RHFH 042010	4.0	150	2000.00	13.80	39	39	35	62.50	125	16	12	10	15	9	33.3	1933.40	7.7
SHFH / RHFH 050510	5.0	30	500.00	17.40	49	39	34	62.50	125	4	12	14	20	13	37.5	425.00	11.7
SHFH / RHFH 051010	5.0	60	1000.00	17.40	49	39	34	62.50	125	8	12	14	20	13	37.5	925.00	11.7
SHFH / RHFH 060510	6.0	25	500.00	20.90	59	49	43	62.50	125	4	16	18	26	17	37.5	425.00	15.7
SHFH / RHFH 061010	6.0	50	1000.00	20.90	59	49	43	62.50	125	8	16	18	26	17	37.5	925.00	15.7
SHFH / RHFH 080510	8.0	18	480.00	28.00	79	79	71	60.00	120	4	25	22	33	21	120.0	240.00	17.7
SHFH / RHFH 081010	8.0	36	960.00	28.00	79	79	71	60.00	120	8	25	22	33	21	120.0	720.00	17.7

Calidad	D.10e27	Dureza	15 -55 HRC
Ángulo del diente	Helicoidal derecho 19° 31' 42"	Acabado del dentado	Fresado
Ángulo de presión	20°	Acabado de las caras	Fresado
Material	SHFH=C45 RHFH=42CrMn4	Tratamiento térmico	Endurecimiento por inducción

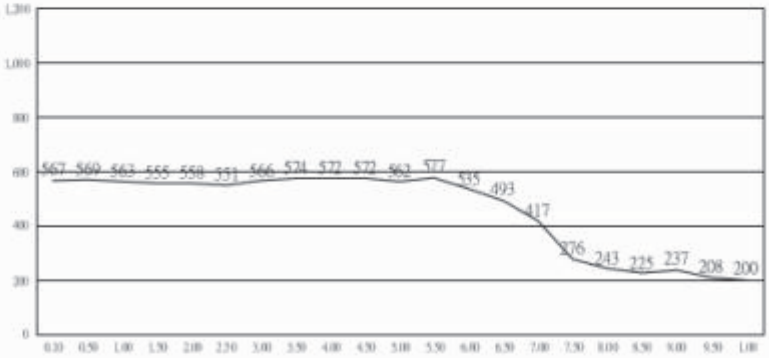
CERTIFICADO DE PROFUNDIDAD DE ENDURECIEMIENTO

CLINT NAME	90004946			BATCT NO	119021200100
MATERIAL	S45C	BATCT DATE	2019/02/12	BATCT QTY	
PART NAME		BATCT QTY	1.00	Q.C. NO	7190212066
PART NUMBER	M2	HEAT TREATMENT		Q.C. DATE	2019/02/12
LOT NUMBER		EXTRA TREATMENT		PRINT DATE	2019/02/12

ITEMS	REQUIRED STD	RESULT
SURFACE HARDNESS		OK
CORE HARDNESS		
CARBONIZED DEPTH		
NITRIDED DEPTH		
MICROSTRUCTURE		

GRAPH OF INSPECTED PART	HARDENED DEPTH

(LOAD): 300 g



P.S.

F1303A/2

APPROVAL INSPECTOR

CERTIFICADO DE ERROR DE PASO ÚNICO Y TOTAL

Production Part Approval Process
Dimensional Results

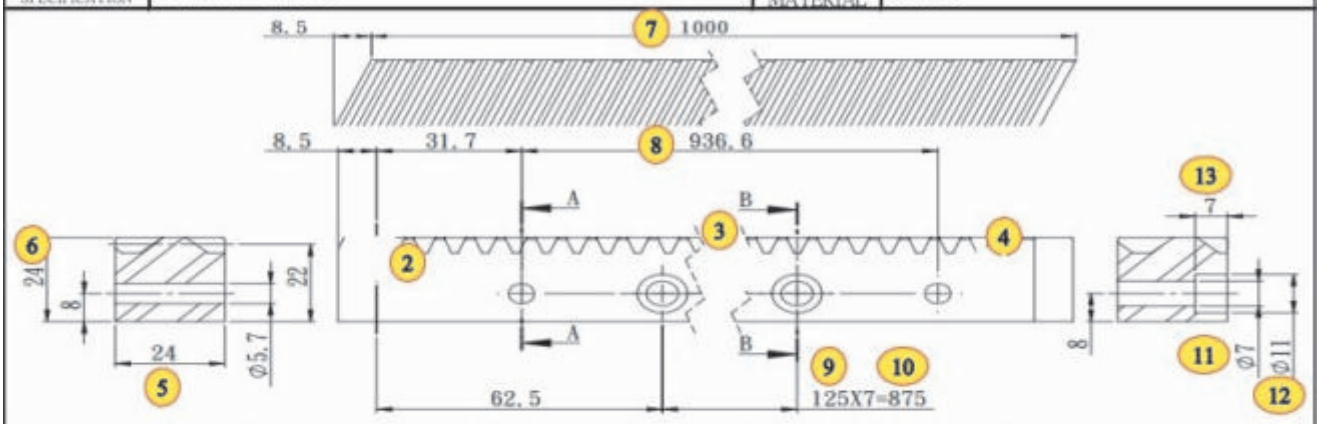
Supplier:	Part Number:
<Supplier>	<Part Number>
Inspection Facility:	**Part Name:**
<Inspection Facility>	SHGH021006
Sample Identification:	**Revision:**
<Identification>	

Item	Specification	+Tol	-Tol	Measurement	OK	Reject
1	6.6665 (1-M)	0.0050	-0.0050	6.6681	✔	
2	6.6665 (2-M)	0.0050	-0.0050	6.6659	✔	
3	6.6665 (3-M)	0.0050	-0.0050	6.6672	✔	
4	6.6665 (4-M)	0.0050	-0.0050	6.6631	✔	
5	6.6665 (5-M)	0.0050	-0.0050	6.6668	✔	
6	6.6665 (6-M)	0.0050	-0.0050	6.6674	✔	
7	6.6665 (7-M)	0.0050	-0.0050	6.6667	✔	
8	6.6665 (8-M)	0.0050	-0.0050	6.6684	✔	
9	6.6665 (9-M)	0.0050	-0.0050	6.6644	✔	
10	6.6665 (10-M)	0.0050	-0.0050	6.6653	✔	
11	6.6665 (11-M)	0.0050	-0.0050	6.6669	✔	
12	6.6665 (12-M)	0.0050	-0.0050	6.6681	✔	
13	6.6665 (13-M)	0.0050	-0.0050	6.6663	✔	
14	6.6665 (14-M)	0.0050	-0.0050	6.6662	✔	
15	6.6665 (15-M)	0.0050	-0.0050	6.6669	✔	
16	6.6665 (16-M)	0.0050	-0.0050	6.6665	✔	
17	6.6665 (17-M)	0.0050	-0.0050	6.6682	✔	
18	6.6665 (18-M)	0.0050	-0.0050	6.6647	✔	
19	6.6665 (19-M)	0.0050	-0.0050	6.6680	✔	
20	6.6665 (20-M)	0.0050	-0.0050	6.6643	✔	
21	6.6665 (21-M)	0.0050	-0.0050	6.6692	✔	
22	993.3085 (-M)	0.0360	-0.0360	993.3253	✔	
23	19.5283 (41-A)	0.1000	-0.1000	19.5457	✔	
24	20.0000 (-A)	0.1500	-0.1500	20.0799	✔	

CERTIFICADO TÉCNICO - DIMENSIONAL

Inspection report

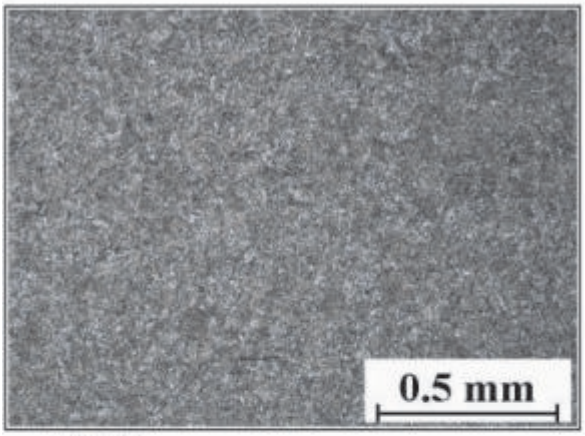
CLIENT			
NUMBERING	SHGH021006	QC DATE	106.11.21
PRODUCT NAME	M2Oblique rack	QUANTITY	1
SPECIFICATION	24*24*1000	MATERIAL	S45C



	TES ITEMS	FIGURE SIZE	WORKPIECE1	WORKPIECE2	WORKPIECE3	WORKPIECE4	WORKPIECE5	REMARKS
1	EXTERIOR	Can not have burrs. Variants, Scars, Dirty, Rusty, Poor surface treatment	OK					
2	CROSS-SELLING VALUE - BEFORE	25.53+0/-0.02	25.525					
3	CROSS-SELLING VALUE - IN	25.53+0/-0.02	25.521					
4	CROSS-SELLING VALUE - TAIL	25.53+0/-0.02	25.518					
5	WIDTH	24	23.98					
6	HEIGHT	24	23.98					
7	LENGTH	1000	999.85					
8	HOLE PITC	936.6	936.02					
9	HOLE PITC	125	125.01					
10	HOLE PITC	875	875.03					
11	APERTURE	ϕ7	7.05					
12	APERTURE	ϕ11	11.03					
13	HOLE DEEP	7	7.15					
14	HIGH FREQUENCY	HRC50~55	53					
15	Helix angle	19.528°	19.533					
16	PRESSURE ANGLE	20°	20.05					

KHP020-01-1

CERTIFICACIÓN DE INSPECCIÓN METALOGRÁFICA



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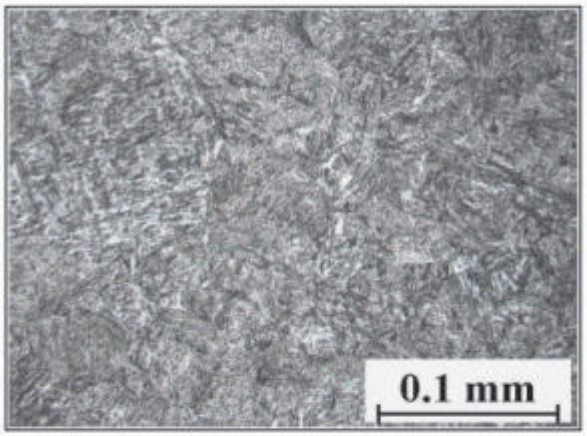

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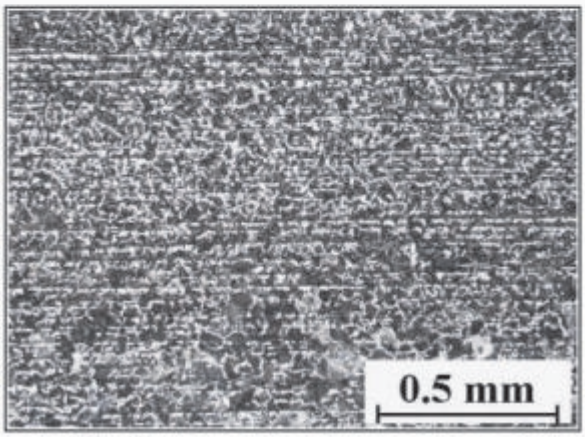

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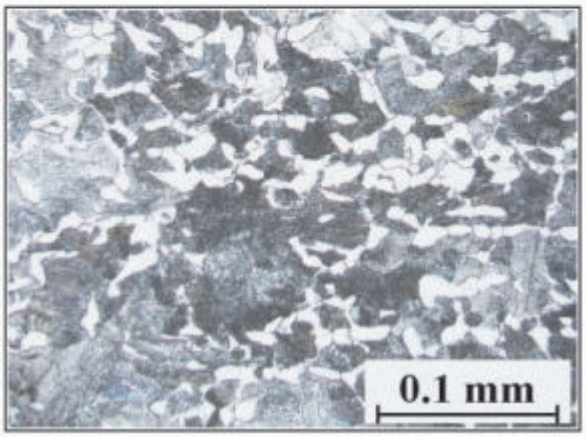

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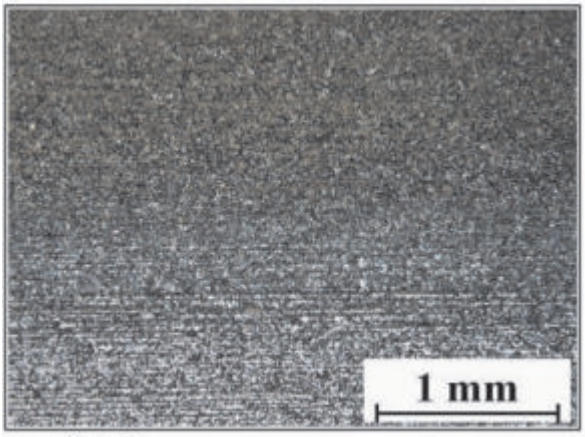

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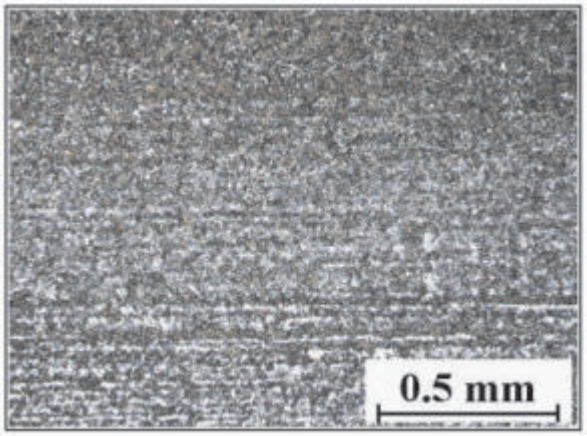
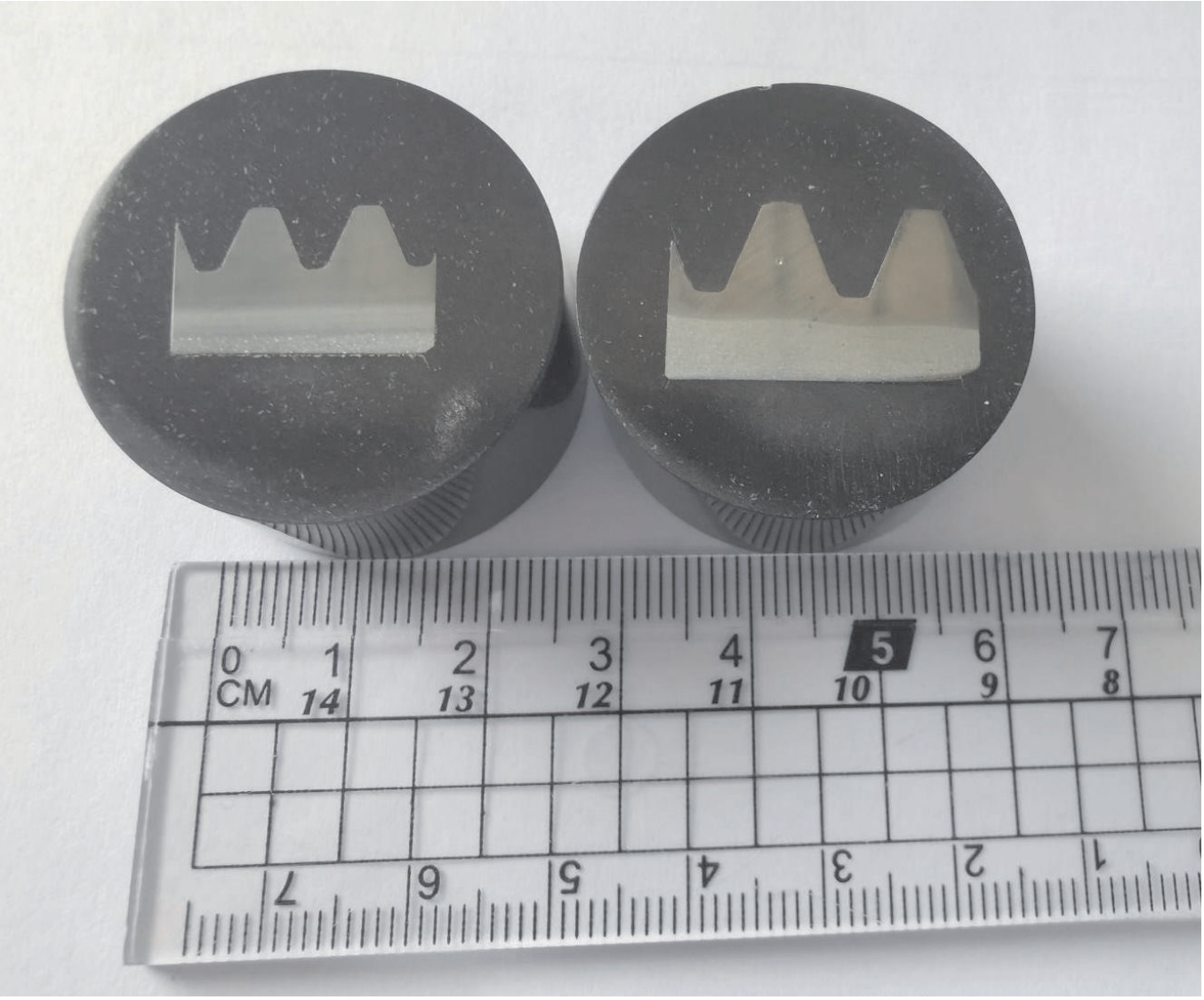
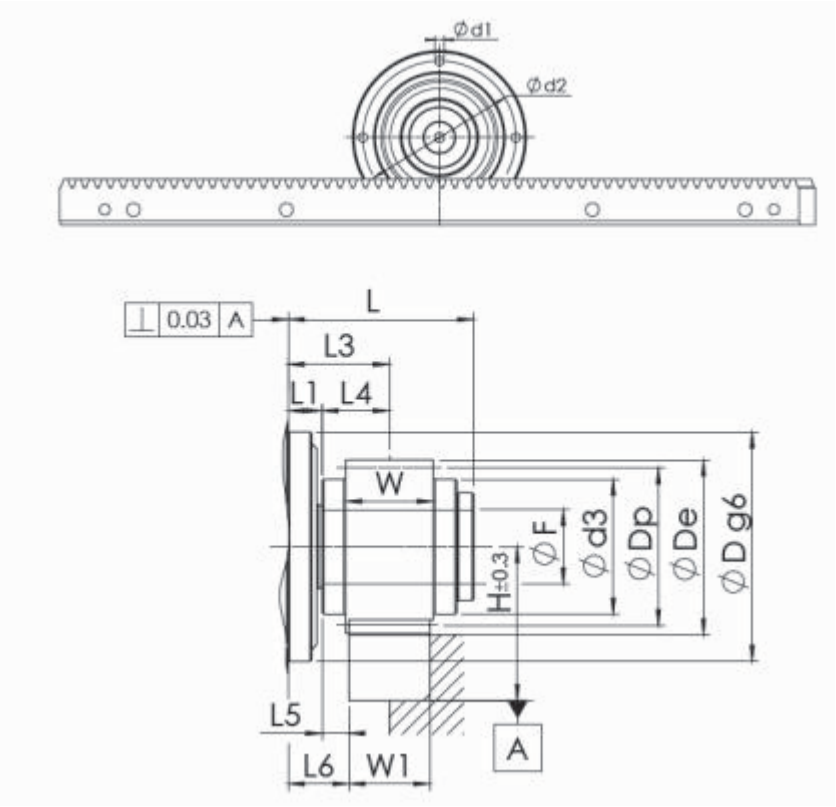


(Photo 2)

SECCIÓN PROBETA



ESPECIFICACIONES TÉCNICAS



eje de l reductor		M	z	F [mm]	H [mm]	W [mm]	W1 [mm]	DE [mm]	DP [mm]	x [mm]	D G6 [mm]	P1 [mm]	P2 [mm]	P3 [mm]	L1 [mm]	L [mm]	L3 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	peso	CÓDIGO
Eje	16	2	18	16	41,89	26	24	43,80	38,20	0,4	52	M5	62	30	8	44	27	19	7	15	0,2	RKPE18M2F16 C6
Eje	22	2	18	22	41,89	26	24	43,80	38,20	0,4	52	M5	62	32	10	48	30	20	8	18	0,2	RKPE18M2F22 C6
Eje	22	2	20	22	44,02	26	24	48,04	42,44	0,4	68	M6	80	36	10	48	30	20	8	18	0,3	RKPE20M2F2 2C6
Eje	22	2	22	22	45,73	26	24	51,46	46,69	0,2	68	M6	80	40	10	53	30	20	8	18	0,4	RKPE22M2F2 2C6
Eje	32	2	26	32	49,58	26	24	59,17	55,17	0	90	M8	108	45	12	80	33	21	9	21	0,5	RKPE26M2F3 2C6
Eje	32	3	25	32	65,79	31	29	85,58	79,58	0	90	M8	108	60	12	80	33,5	21,5	7	19	1,5	RKPE25M3F3 2C6
Eje	40	3	24	40	64,19	31	29	82,39	76,40	0	120	M10	140	58	15	83	36,5	21,5	7	22	1,2	RKPE24M3F4 0C6
Eje	40	4	21	40	79,56	40	39	97,13	89,13	0	120	M10	140	62	15	98	70	55	35,5	50,5	2	RKPE21M4F4 0C6
Eje	55	4	24	55	85,93	40	39	109,86	101,85	0	160	M12	184	80	18	110	82	64	44,5	62,5	2,6	RKPE24M4F5 5C6

Nb: posibilidad de ejecución según las especificaciones técnicas del cliente.

Notas técnicas

- Ajuste de contracción a temperatura a petición.
- Bajo pedido es posible proporcionar un espaciador de varios espesores para el montaje del piñón.0
- A petición, es posible suministrar una arandela de bloqueo axial para el montaje del piñón.

CÓDIGO DE PEDIDO- PIÑONES

Ejemplo: RKPE18MF22T06

RKP	E	18	M3	06	T	F22
Piñón de precisión	Dientes E: Elicoidal	N° de dientes 18 20 21 22 24 25 26	Modulo M2 M3 M4 M5 M6 M8	Calidad 05: DIN 5 06: Din6 07: DIN7 08: DIN8 09: DIN9 10: DIN10	Tratamiento térmico T: Inducción C: Cementado N: Nitruración B: Bonificado : Sin tratamiento	Agujero eje 16 20 22 32 40 55

Materiales	Materiales (DIN)	Tratamiento térmico
SNCM220 (8620)	20NiCrMo2	Carbonización HRC 58 -62
SCM415	15CrMo5	Carbonización HRC 58 -62
SNCM439	36CrNiMo4	Carbocementation HRC 54 -56
S45C	C45	Endurecimiento por inducción HRC 50 -55
SCM440 (4140)	42CrMo4	Endurecimiento por inducción HRC 50 -55

Nb: posibilidad de ejecución según las especificaciones técnicas del cliente.

CERTIFICADO CURVA DE TEMPLADO

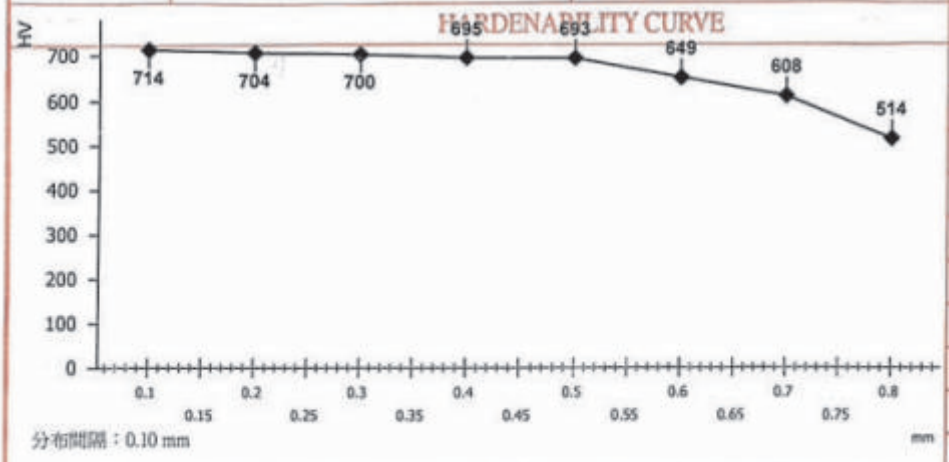
Inspect date 2019-08-09

QC REPORT

R-0808A

Customer name	7602		
Batch no.	1823878	QC sheet no.	30374936
Parts name		Part no.	PKPE26M2F32C6
Batch qty	18.55 KG	Lot no.	2019071208[illegible]0.53
Items	REQUEST SPECIFICATION	TEST RESULTS	
Surface hardness	HRC 58-60	HRC 59-60	
Carburized depth	0.6-0.8 MM		
Core hardness			

HARDENABILITY CURVE



HARDNESS

	Surface hardness unit		HRC
1	59.0	59.0	
2	60.0	60.0	
3	60.0	59.0	
4	59.0	60.0	
5			

	Core hardness unit		
1			
2			
3			
4			
5			

Note: 1823879 1823880 1823881

Photo of structure

Description

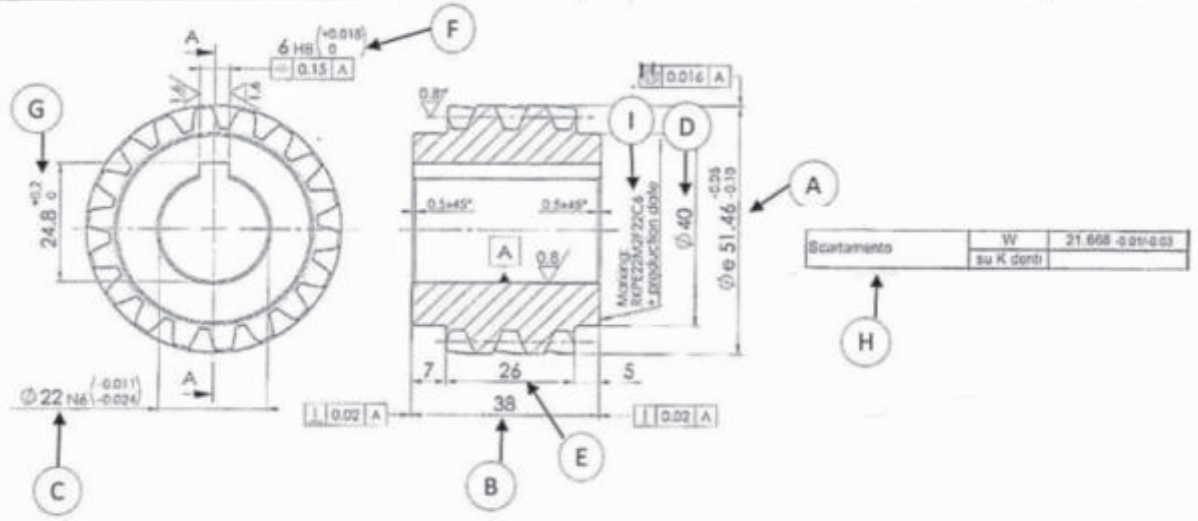
APPROVAL

INSPECTOR

CERTIFICADO TÉCNICO - DIMENSIONAL

INSPECTION REPORT

Customer		MO Number		Quantity	
Part Number		Date (Y/M/D)		Inspection Quantity	



No.	Dimension Specification		Measuring Instruments	1	2	3	4	5	6	7	8	OK/NG
A	51.460	+0.05 -0.10	OD Micrometer	51.390	51.380	51.390	51.380	51.380				OK
B	38	+0.3 -0.3	Caliper	37.970	37.960	37.980	37.980	37.980				OK
C	22	-0.011 -0.024	Cylinder gauge	21.987	21.987	21.988	21.988	21.988				OK
D	40	+0.3 -0.3	Caliper	39.980	39.980	39.980	39.990	39.990				OK
E	26	+0.2 -0.2	Caliper	26.040	26.050	26.050	26.050	26.040				OK
F	6	+0.018 -0	Inside Micrometer	6.012	6.012	6.011	6.012	6.011				OK
G	25	+0.2 -0	Caliper	24.930	24.930	24.940	24.940	24.940				OK
H	21.7	-0.01 -0.03	Disc Micrometer	21.644	21.645	21.645	21.645	21.645				OK
I	Marking		Visual	ok	ok	ok	ok	ok				OK
J	Appearance		Visual	ok	ok	ok	ok	ok				OK
K												
L												
M												

QA Manager		Inspectors		Verdict	

P21-01B

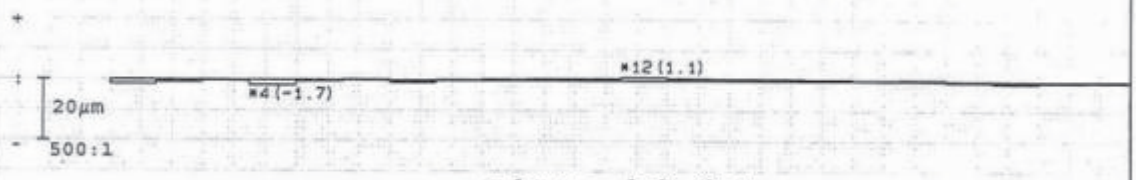
CERTIFICADO DE ERROR DE CON EVOLVENTIMETRO

Gear Spacing

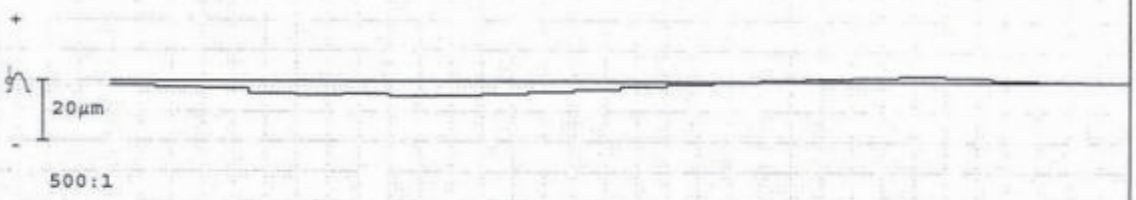
Prog.No.: GST0416_04 4.5.1 0	P 26 5G	Operator:	P26-2	Date:	07.08.2019 22:56
Type:	21.668-0.01-0.03	No. of teeth	22	Pressure angle	20°
Drawing No.:	RKPE22M2F22C6	Module m	2mm	Helix angle	-19.5283°
Order No.:	RKPE22M2F22C6	Loc. of check:	CCH		
Cust./Mach. No.:	KL-P26-2	Condition:	M2-22T		

DIN 3962

Tooth to tooth spacing fp left flank

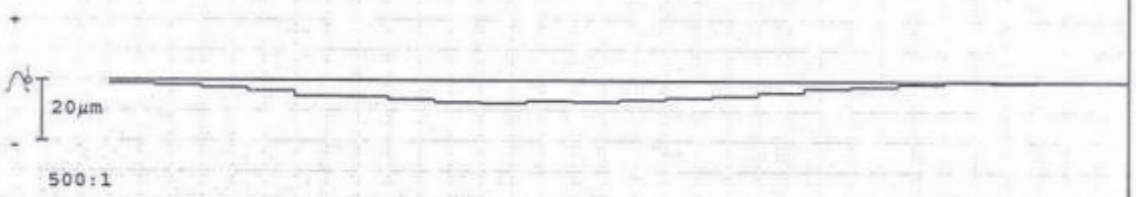


Index Fp left flank



Tooth to tooth spacing fp right flank

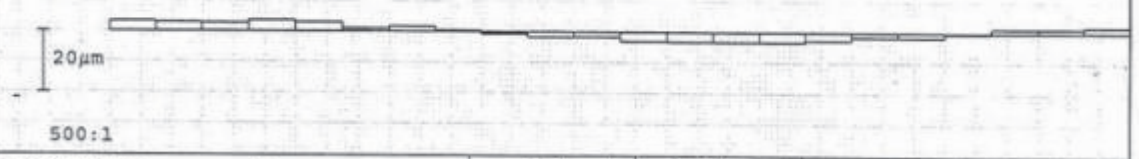
Index Fp right flank



Pitch measuring circle:48.165 z=13mm		left flank				right flank			
		Act.value	Qual.	Lim.value	Qual.	Act.value	Qual.	Lim.value	Qual.
Worst pitch variation	fp max	1.7	3	7.0	6	1.8	3	7.0	6
Worst spacing variation	fu max	1.5	1	9.0	6	1.8	2	9.0	6
Range of Pitch Error	Rp	2.8				3.2			
Total index variation	Fp	6.8	3	18.0	6	7.6	4	18.0	6
Total index var.within sector	Fps/8	2.7	2	8.0	6	3.6	3	8.0	6

DIN 3962

Runout Fr (Ball-Ø =4mm)

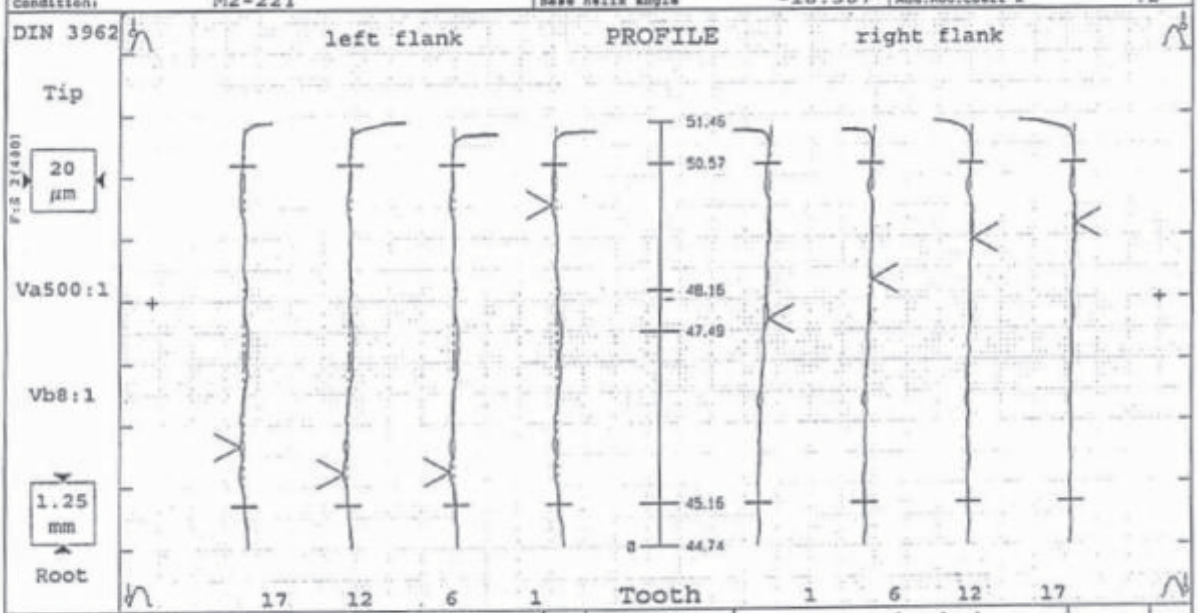


Pitch Line Runout	Fr	7.0	4	14.0	6
Variation of tooth thickness	Rs	5.2	5	8.0	6

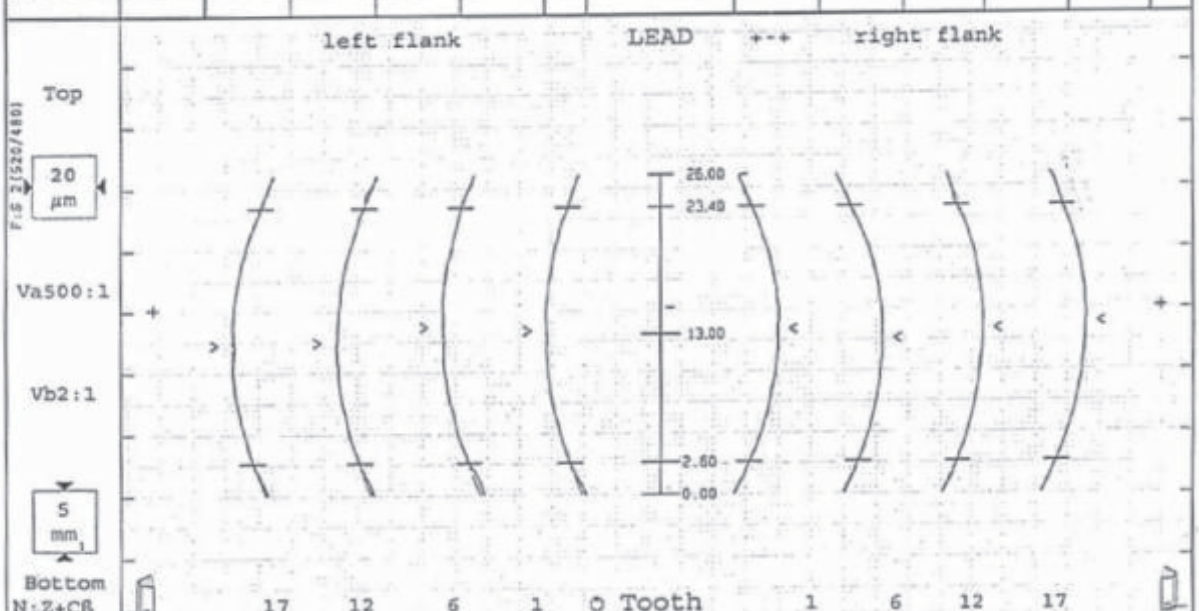
CERTIFICADO DE ERROR DE CON EVOLVENTIMETRO

Gear Profile/Lead

Prog.No.:	GST0416_04 4.5.1 0 P 26 5G	Operator:	P26-2	Date:	07.08.2019 22:56
Type:	21.668-0.01-0.03	No. of teeth	22	Face Width:	26mm
Drawing No.:	RKPE22M2F22C6	Module m	2mm	Length Ev. La	6.87mm
Order No.:	RKPE22M2F22C6	Pressure angle	20°	Length Ev. LB	20.8mm
Cust./Mach. No.:	KL-P26-2	Helix angle	-19.5283°	Appr. Length M1	5.98mm
Loc. of check:	CCH	Base Cir.-Ø db	43.5508mm	Stylus-Ø	(82)1mm
Condition:	M2-22T	Base Helix angle	-18.307°	Add.Mod.Coeff x	.2



Tolerance		Avg.	Act.value [µm]				Qual	Tolerance		Act.value [µm]				Avg.	Qual
Var		2.2					1							2.3	3
fHa	±5	0.2	0.0	-1.0	0.5	1.2	2	±5	6	3.2	2.5	1.0	0.9	1.9	5
Fa	8	2.8	2.4	2.7	2.7	3.2	4	8	6	3.4	3.0	2.1	1.8	2.6	4
ffa	6	2.5	2.3	2.3	2.6	2.7	4	6	6	2.3	2.1	2.2	1.8	2.1	4



Var		4.9					1							5.3	1
fHβ	±9	-0.5	-2.8	-2.1	2.1	1.0	3	±9	6	1.3	-2.0	1.4	3.3	1.0	3
Fβ	10	2.5	2.8	1.9	2.8	2.4	1	10	6	3.9	2.8	1.5	3.1	2.8	2
ffβ	7	0.8	1.0	0.7	0.9	0.7	1	7	6	0.8	1.1	1.3	0.9	1.0	1
CB	12±2	11.1	11.5	11.4	10.8	10.8		12±2		13.1	13.5	12.9	12.7	13.1	

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