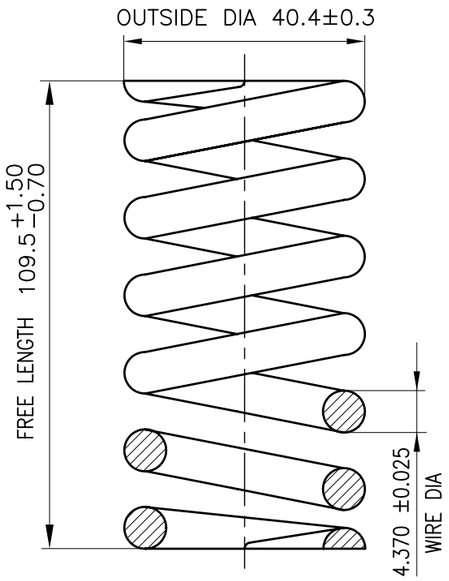
ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP.

DRAWING NO. 3-V-7506-10707



SPRING NO	0 – 170 MP
TOTAL COILS	15.5
DIRECTION OF WINDING	LH COILS
MAX. SOLID HEIGHT	67.6 mm
LOAD AT 77.8 mm SPRING LENGTH	24.0 kgs ±5%
LOAD AT 71.1 mm SPRING LENGTH	43.0 kgs ±5%
MATERIAL – COBALT ALLOY –MP35N(UNS30035)	
AFTER FORMING AGE AT 610/650°C FOR 4 HOURS	

NOTES:

1. APPROX. 1.25 CLOSED COILS AT ONE END
2. APPROX. 2 FULL PITCHES AT OPPOSITE END TO BE 9.5 mm
3. SPRING IS TO BE "HOT SET" PRIOR TO FINAL INSPECTION
4. HOT SET = 2 HOURS AT 530°C WHILST AT SOLID LENGTH FOLLOWED BY AIR COOL AND RELEASE

NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
		96415259 OR 97462338				0.2			347

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT

BHARAT HEAVY ELECTRICALS LTD.,
UNIT: HIGH PRESSURE BOILER PLANT.
TIRUCHIRAPALLI-620014.
365-121

	NAME	SIGN	DATE	NO.OF VAR.
DRN	K.P.LEON		04.01.92	
CHD	V.P.PILLAI		04.01.92	
APPD	K.NAGARAJAN		04.01.92	

DEPT	GRADE OF UNTOLDIM		SCALE	WEIGHT (KG).	REFERENCE INFORMATIONS	NO. OF ITEMS
VL	C/M/F		NTS	0.21	DRESSER DRG.NO: SD CHART 405 DRESSER PART NO: 4-2.5/EZ159 HANSON REF: HSPRM 69	
CODE 340						

TITLE	CARD CODE	DRAWING NO.	REV
SPRING – MAIN	U 01	3-V-7506-10707	00

REV	DATE	ALTERED
		CHD & APPD

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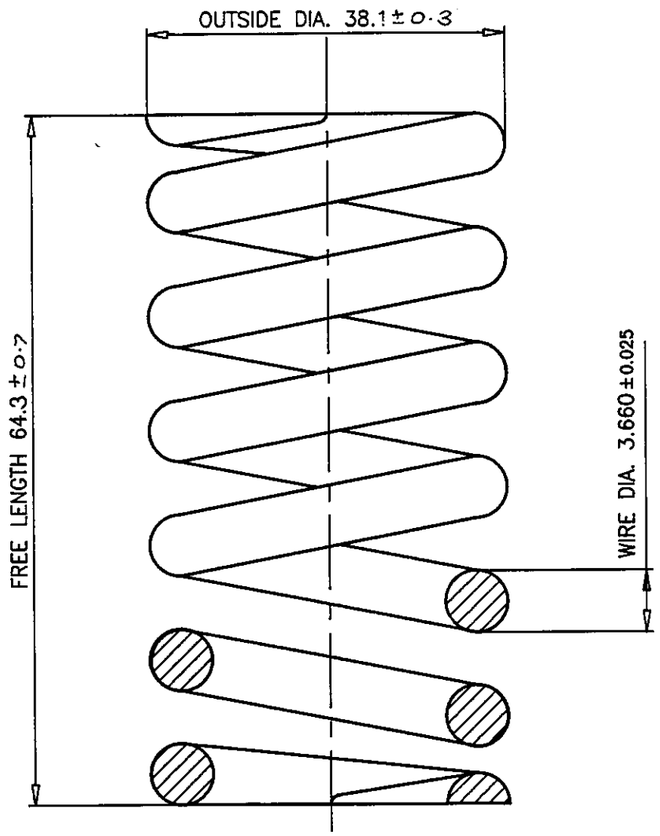
Size A3

ALL DIMENSIONS ARE IN MM



SPRING NO.	0 – 87 IX
TOTAL COILS	8.75
DIRECTION OF WINDING	LH COILS
MAX. SOLID HEIGHT	30.2mm
LOAD AT 58.7mm SPRING LENGTH	4.5kgs $^{+0}_{-5\%}$
LOAD AT 36.5mm SPRING LENGTH	22.6kgs $^{+0}_{-5\%}$
MATERIAL – INCONEL X750 –(AMS 5699)	
AFTER FORMING AGE AT 732°C FOR 16 HOURS	

NOTES:

1. APPROX. 1.0 CLOSED COILS AT ONE END
2. APPROX. 1.7 COILS AT OPPOSITE END TO BE 0.5 PITCH
3. SPRING ARE TO BE "HOT SET" PRIOR TO FINAL INSPECTION
4. HOT SET = 2 HOURS AT 500°C WHILST COMPRESSED TO 41.3mm LENGTH FOLLOWED BY AIR COOL AND RELEASE

SL No	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No

BHARAT HEAVY ELECTRICALS LTD.,
BOILER PLANT UNIT, TIRUCHIRAPALLI-620 014.

	NAME	SIGN	DATE
DRAWN	K.P.LEON		4.1.92
CHECKED	V.P.PILLAI		4-1-91
APPROVED	K.NAGARAJAN		

REV	DATE	ALTERED	CHECKED
02	4.1.92		

ZONE: UPDATED TO DRESSER ENGG. REVISION EZ159

DEPT.	GRADE OF UNTOL DIM.	FIRST ANGLE	SCALE	WEIGHT (kg)	DRESSER DRG No: SD CHART 404	ITEM No.
VL	C/M/F		N.T.S.	0.12	DRESSER PART No: 2–4.2/EZ159	
CODE 340					HANSON SPRINGS:	

TITLE: SPRING – MAIN

DRG No. 3–V–7504–10494

REVISION 02

OMAC CODE :

A3

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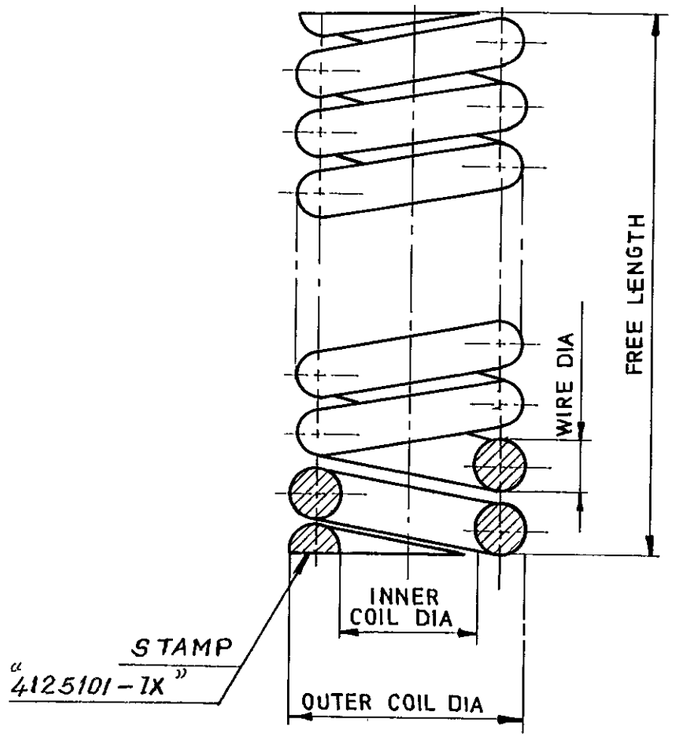
TP-DG-3-V-7520-10603
CORPORATE DRG ID

CLASS NUMBER	6-1525 VX
INSIDE DIAMETER	$51.820^{+0.800}_{0}$ mm
OUTSIDE DIAMETER	$67.690^{+0.800}_{0}$ mm
BAR DIAMETER	7.938 mm
FREE HEIGHT	177.800 ± 2.30 mm
SOLID HEIGHT (MAX)	92.96 mm
SOLID LOAD	150.113 Kgs
SOLID STRESS	45.967 Kg/mm²
TOTAL TRAVEL	99.10 mm
INITIAL DEFLECTION	39.700 mm
INITIAL LOAD AT 138.1 WORKING LENGTH OF SPRING	70.522 Kg
INITIAL STRESS	21.552 Kg/mm²
FINAL DEFELECTION	76.2 mm
FINAL LOAD 101.6 WORKING LENGTH OF SPRING	94.558 Kg
SOLID STRESS	45.967 Kg/mm²
AVERAGE LOAD RATE AT ROOM TEMP.	1.777 KgF/mm
WORKING TEMP. CONDITIONS	315.6 C°
TOTAL COILS	12.25
AVE. LOAD RATE AT 600°F	1.614 KgF/mm
MATERIAL	ASTM B637 UNS NO. N07750 (FORMERLY GR. 688) TY. 2
HEAT TREATMENT	NOTE-1
MATL. CODE	96415208/97462232



NOTE:-

1. SOLUTION TREATMENT AND PRECIPITATION HARDENING TREATMENT REQUIRED AFTER COILING.

NO. OF PIECES	DESCRIPTION	SEM PRO./SEQ.NO.	INT. MAT. / SEQ. NO.	FINAL MATERIAL	SCRAP SORT	NET WT (kg)	GROSS (WT) kg	DRAWING NO.	ITEM NO

BHARAT HEAVY ELECTRICALS LTD.,
BOILER PLANT UNIT, TIRUCHIRAPALLI-14

FIRST ANGLE	SCALE			
	NTS	DRAWN	A.VELUSAMY	ITEM NO: 347
		CHECKED	V. Perumal Pillai	DR.DRG.NO.341251/EW 198
		APPROVED		PART NO.4125101/SL.NO.8996
ALL DIMENSIONS IN MILLIMETRES		DATE	9-1-89	WT. KgS : 1.10

CAUTION

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33-115

TITLE: MAIN SPRING

DRAWING NO: 3_V_7520_10603

REVISION: 02

REV	DATE	ALTD:	A	DATE	ALTERED:
02	17-8-99	CHD & APPD: V. Perumal Pillai		01-01-93	CHECKED:

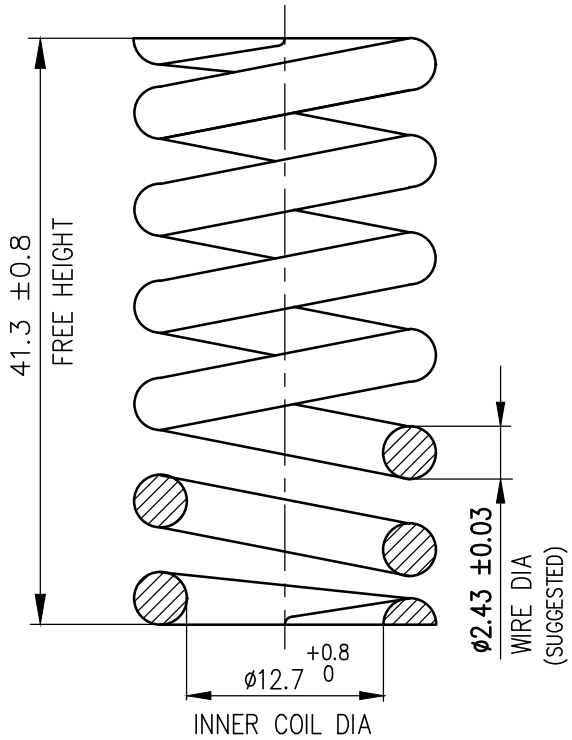
MATL. CODE 97462232 ADDED.
DCN. No. SV: 0586

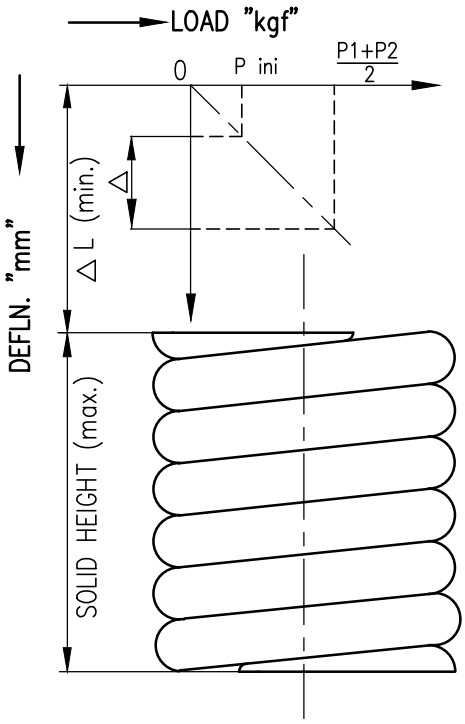
ZONE

OMAC CODE ADDED.

TP-DG-3-V-7520-10603
CORPORATE DRG ID

ALL DIMENSIONS ARE IN MM





ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		1000150	
02	OUTSIDE DIA MAX. LIMIT		mm	22.8
03	SPRING RATE (±4%)		Kg/mm	1.014
04	AVERAGE DEFLECTION △L min.		mm	11.2
05	INITIAL LOADING P ini		Kg	1.7
06	TEST DEFLECTION △		mm	7.8
07	LOAD AT TEST DEFLECTION	P_1 MIN.	Kg	9.3
		P_2 MAX.	Kg	10.0
08	TILT DEFLECTION		mm	9.5

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	10.0 ±0.25
10	SPRING WEIGHT	Kg	0.02
11	PITCH	mm	3.6 ±0.3
12	DEVELOPED LENGTH OF ROD	mm	526
13	SPRING CODE	964150810000	
14	PROCESS OF MANUFACTURE	~~HOT~~/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NONIBR SPRINGS AND DESIGNED FOR SAFETY VALVE APPLICATION ONLY.
2. FREE HEIGHT, SPRING RATE, OUTSIDE DIA & SOLID DEFLECTION SHOULD BE MAINTAINED AND OTHER PARAMETERS TO BE DECIDED BY VENDOR, ACCORDING TO THE MATERIAL SELECTED IN THIS DRAWING.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST: ASTM A227 CL.I&II/IS 4454 (Part-1) Gr.SM/A228, REFER ASTM STD. FOR TENSILE STRENGTH & HARDNESS.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.			
05	ALTD: A.P	06.02.16	OUTSIDE DIA MAX. LIMIT & NOTES REVISED DCP.NO.802077 Dt. 06-02-2016
	CHKD: S.M	06.02.16	
	APPD: E.A	06.02.16	
04	ALTD: G.V	26.07.10	NOTES UPDATED DCN.No.801041
	CHKD: S.M	26.07.10	
	APPD: E.A	26.07.10	

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		15.05.07
CHECKED	E.ATHIANNAVI		15.05.07
APPROVED	E.ATHIANNAVI		15.05.07

TITLE: SPRING

DRG No. 4-V-J015-21242 REV. 05

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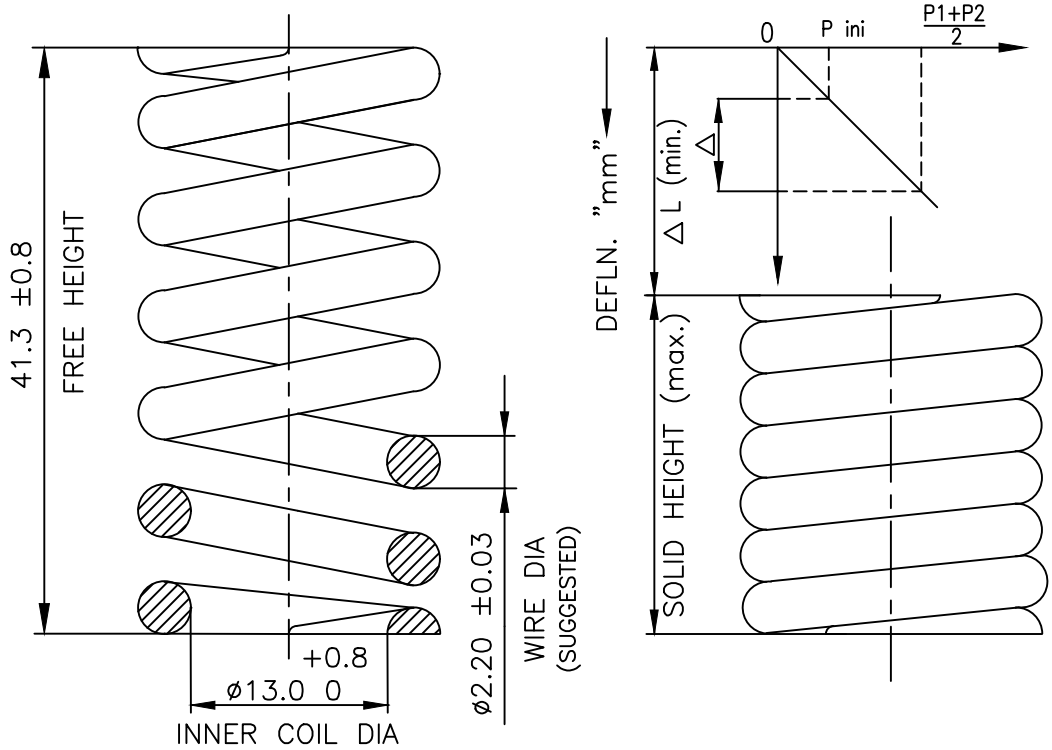
It must not be used directly or indirectly in any way detrimental to the interest of the company.

ALL DIMENSIONS ARE IN MM



ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		1100150SY	
02	OUTSIDE DIA MAX.LIMIT		(mm)	23.8
03	SPRING RATE		(Kg/mm)	0.7499
04	AVERAGE DEFLECTION ΔL min.		(mm)	20.4
05	INITIAL LOADING P_{ini}		(Kgs)	2.3
06	TEST DEFLECTION Δ		(mm)	14.3
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	12.5
		P_2 MAX.	(Kgs)	13.5
08	TILT DEFLECTION		(mm)	17.3

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO.OF COILS	NOS	$9.2^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	0.01
11	PITCH	(mm)	4.7±0.3
12	DEVELOPED LENGTH OF ROD	(mm)	–
13	RAW MATERIAL DIA x LENGTH	(mm)	–
14	RAW MATERIAL WEIGHT	(Kgs)	–
15	PROCESS OF MANUFACTURE	–	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NONIBR SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST : ASTM A313 TYPE-316/A276 TYPE-316.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.02	ALTD:	REV.01	ALTD:
	CHKD:		CHKD:
	APPD:		APPD:

भेल BHEL 365-081

	NAME	SIGN	DATE
DRAWN	J.Dhanabal		19.06.2018
CHECKED	R.Rabin		19.06.2018
APPROVED	S.Madhulingam		19.06.2018

TITLE SPRING

DRG No. 4-V-J015-21869 REV. 00

COMP. CODE: 974611580000

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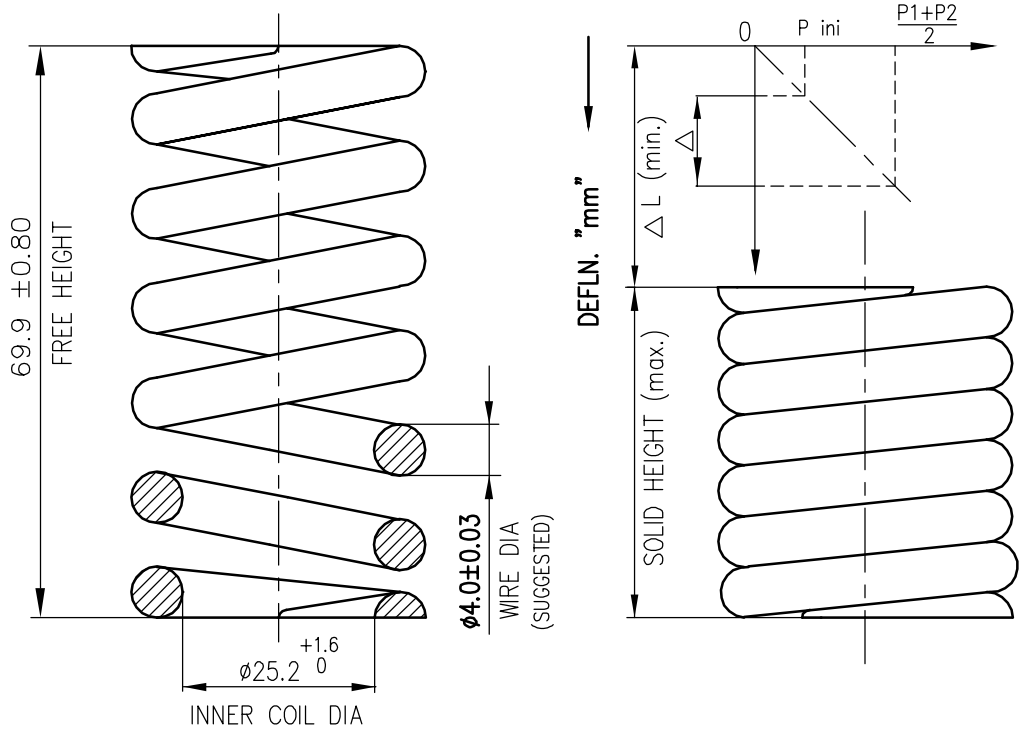
ALL DIMENSIONS ARE IN MM



ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0100160	
02	OUTSIDE DIA MAX. LIMIT		mm	38.1
03	SPRING RATE (±4%)		Kg/mm	1.803
04	SOLID DEFLECTION △L min.		mm	$45.2^{+2.4}_{-0.0}$
05	INITIAL LOADING P ini		Kg	12.2
06	TEST DEFLECTION △		mm	31.7
07	LOAD AT TEST DEFLECTION	P_1 MIN.	Kg	66.5
		P_2 MAX.	Kg	72.2
08	TILT DEFLECTION		mm	38.5

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	5.8±0.25
10	SPRING WEIGHT	Kg	0.06
11	PITCH	mm	10.7±0.3
12	DEVELOPED LENGTH OF ROD	mm	625
13	SPRING CODE	964150790000	
14	PROCESS OF MANUFACTURE	~~HOT~~/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NONIBR SPRINGS AND DESIGNED FOR SAFETY VALVE APPLICATION ONLY.
2. FREE HEIGHT, SPRING RATE & SOLID DEFLECTION SHOULD BE MAINTAINED AND OTHER PARAMETERS TO BE DECIDED BY VENDOR, ACCORDING TO THE MATERIAL SELECTED IN THIS DRAWING.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST: ASTM A227 CL.I&II/IS 4454 (Part-1) Gr.SM/A228, REFER ASTM STD. FOR TENSILE STRENGTH & HARDNESS.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.			
03	ALTD: G.V	11.08.14	NOTES UPDATED DCN.No.801682
	CHKD: S.M	11.08.14	
	APPD: E.A	11.08.14	
02	ALTD: G.V	30.06.08	DRG. UPDATED & REDRAWN IN CAD. DCP.NO.800783 DT.07.01.08
	CHKD: E.A	30.06.08	
	APPD: E.A	30.06.08	

365-081		NAME	SIGN	DATE
	DRAWN	G.VENKATESWARALU		30.06.08
	CHECKED	E.ATHIANNAVI		30.06.08
	APPROVED	E.ATHIANNAVI		30.06.08

TITLE: SPRING

DRG No. 4-V-J016-21545 REV. 03

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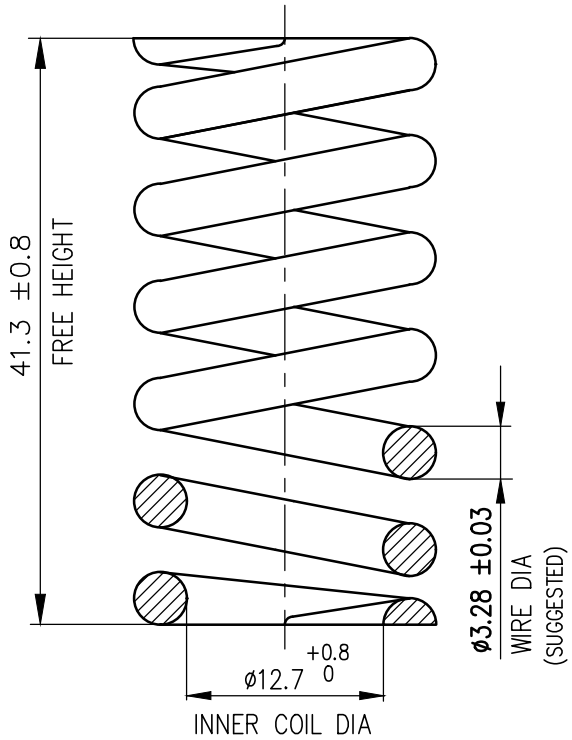
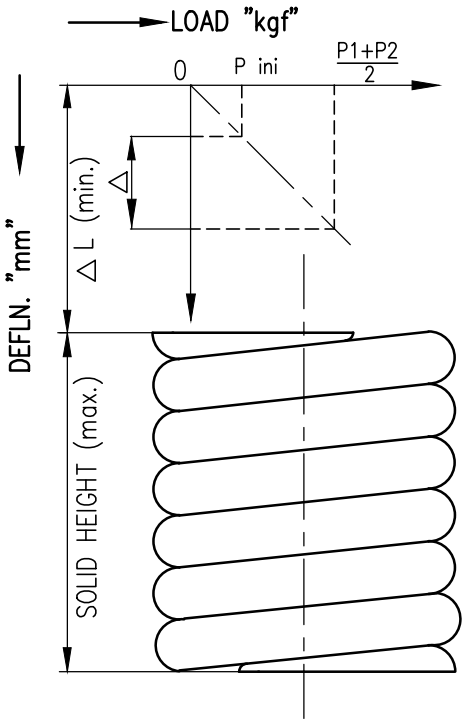
ALL DIMENSIONS ARE IN MM





ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		1000180	
02	MAX. OUTSIDE DIA		mm	22.8
03	SPRING RATE (±4%)		Kg/mm	4.062
04	AVERAGE DEFLECTION △L min.		mm	10.7
05	INITIAL LOADING P ini		Kg	6.5
06	TEST DEFLECTION △		mm	7.5
07	LOAD AT TEST DEFLECTION	P_1 MIN.	Kg	35.6
		P_2 MAX.	Kg	38.6
08	TILT DEFLECTION		mm	9.1

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	7.1 ±0.25
10	SPRING WEIGHT	Kg	0.03
11	PITCH	mm	4.9 ±0.3
12	DEVELOPED LENGTH OF ROD	mm	406
13	SPRING CODE	964150560000	
14	PROCESS OF MANUFACTURE	~~HOT~~/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NONIBR SPRINGS AND DESIGNED FOR SAFETY VALVE APPLICATION ONLY.
2. FREE HEIGHT, SPRING RATE, OUTSIDE DIA & SOLID DEFLECTION SHOULD BE MAINTAINED AND OTHER PARAMETERS TO BE DECIDED BY VENDOR, ACCORDING TO THE MATERIAL SELECTED IN THIS DRAWING.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST: ASTM A227 CL.I&II/IS 4454 (Part-1) Gr.SM/A228, REFER ASTM STD. FOR TENSILE STRENGTH & HARDNESS.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.			
03	ALTD: A.P	06.02.16	
	CHKD: S.M	06.02.16	
	APPD: E.A	06.02.16	

OUTSIDE DIA MAX. LIMIT & NOTES REVISED

DCP.NO.802077 Dt. 06-02-2016

REV.		
02	ALTD: G.V	05.08.10
	CHKD: S.M	05.08.10
	APPD: E.A	05.08.10

NOTES UPDATED
DCN.No.801041

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		15.05.07
CHECKED	E.ATHIANNAVI		15.05.07
APPROVED	E.ATHIANNAVI		15.05.07

TITLE: SPRING

DRG No. 4-V-J018-21520 REV. 03

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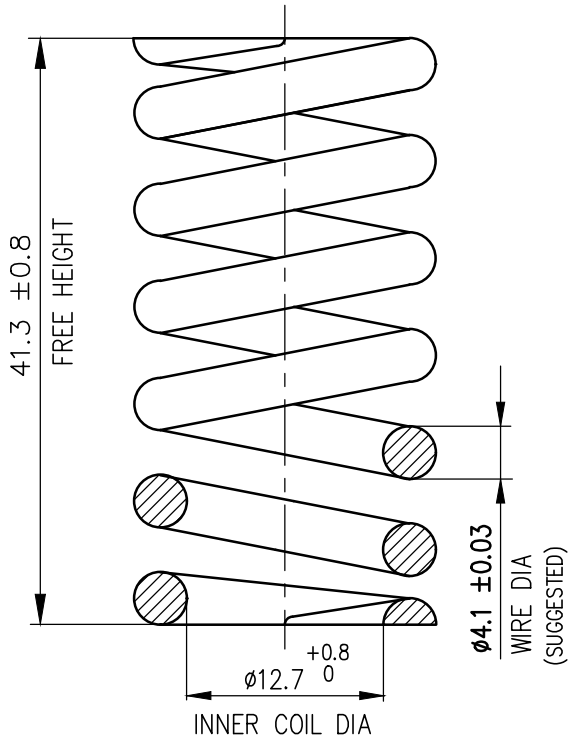
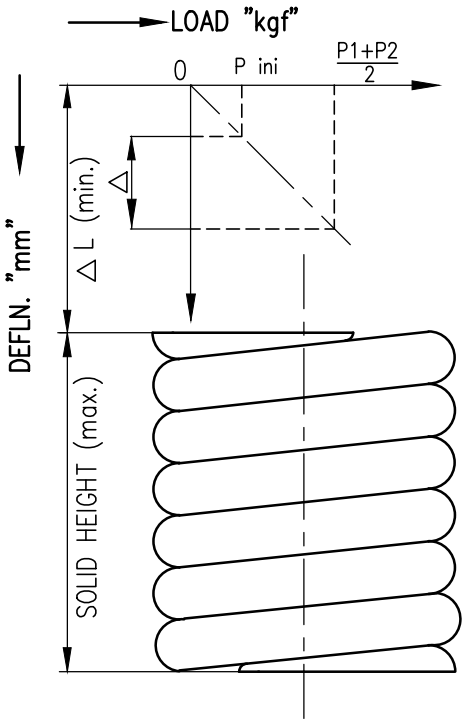
ALL DIMENSIONS ARE IN MM





ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		1000220	
02	OUTSIDE DIA MAX. LIMIT		mm	22.8
03	SPRING RATE (±4%)		Kg/mm	10.445
04	AVERAGE DEFLECTION △L min.		mm	10.2
05	INITIAL LOADING P ini		Kg	15.9
06	TEST DEFLECTION △		mm	7.1
07	LOAD AT TEST DEFLECTION	P_1 MIN.	Kg	86.5
		P_2 MAX.	Kg	93.9
08	TILT DEFLECTION		mm	8.6

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	5.8 ±0.25
10	SPRING WEIGHT	Kg	0.04
11	PITCH	mm	5.7 ±0.3
12	DEVELOPED LENGTH OF ROD	mm	362
13	SPRING CODE	964150750000	
14	PROCESS OF MANUFACTURE	~~HOT~~/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NONIBR SPRINGS AND DESIGNED FOR SAFETY VALVE APPLICATION ONLY.
2. FREE HEIGHT, SPRING RATE, OUTSIDE DIA & SOLID DEFLECTION SHOULD BE MAINTAINED AND OTHER PARAMETERS TO BE DECIDED BY VENDOR, ACCORDING TO THE MATERIAL SELECTED IN THIS DRAWING.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST: ASTM A227 CL.I&II/IS 4454 (Part-1) Gr.SM/A228, REFER ASTM STD. FOR TENSILE STRENGTH & HARDNESS.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.			REV.		
02	ALTD: A.P	06.02.16	01	ALTD: G.V	18.12.10
	CHKD: S.M	06.02.16		CHKD: S.M	18.12.10
	APPD: E.A	06.02.16		APPD: E.A	18.12.10
OUTSIDE DIA MAX. LIMIT & NOTES REVISED DCP.NO.802077 Dt. 06-02-2016			NOTES UPDATED DCN.No.801041		

	NAME	SIGN	DATE
DRAWN	MRC		30.11.96
CHECKED	KSR		30.11.96
APPROVED	KSR		30.11.96

TITLE: SPRING

DRG No. 4-V-J022-21554 REV. 02

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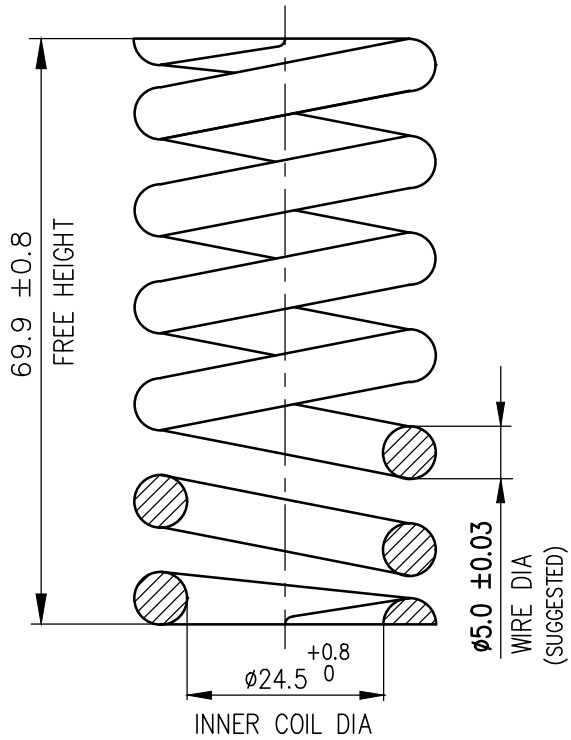

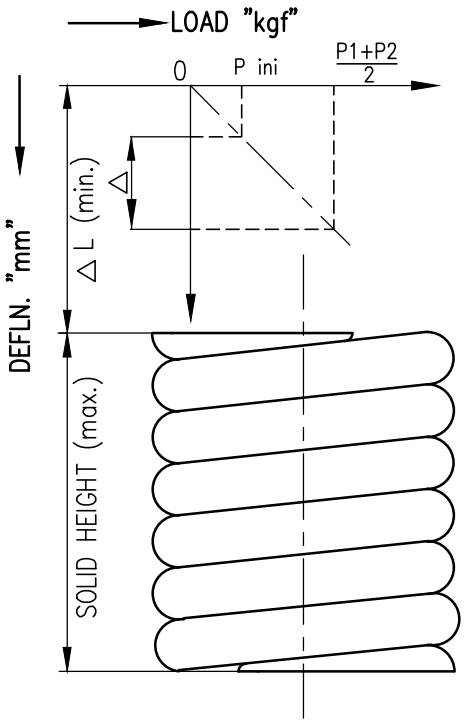

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0300220	
02	OUTSIDE DIA MAX. LIMIT		mm	38.1
03	SPRING RATE (±4%)		Kg/mm	3.982
04	AVERAGE DEFLECTION △L min.		mm	29
05	INITIAL LOADING Pini		Kg	17.3
06	TEST DEFLECTION △		mm	20.3
07	LOAD AT TEST DEFLECTION	P_1 MIN.	Kg	94.1
		P_2 MAX.	Kg	102.2
08	TILT DEFLECTION		mm	24.7

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	6.22 ±0.25
10	SPRING WEIGHT	Kg	0.12
11	PITCH	mm	9.7 ±0.3
12	DEVELOPED LENGTH OF ROD	mm	762
13	SPRING CODE	964165550000	
14	PROCESS OF MANUFACTURE	HOT/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NONIBR SPRINGS AND DESIGNED FOR SAFETY VALVE APPLICATION ONLY.
2. FREE HEIGHT, SPRING RATE, OUTSIDE DIA & SOLID DEFLECTION SHOULD BE MAINTAINED AND OTHER PARAMETERS TO BE DECIDED BY VENDOR, ACCORDING TO THE MATERIAL SELECTED IN THIS DRAWING.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST: ASTM A227 CL.I&II/IS 4454 (Part-1) Gr.SM/A228, REFER ASTM STD. FOR TENSILE STRENGTH & HARDNESS.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.	ALTD:	REV.	ALTD:
	CHKD:		CHKD:
	APPD:		APPD:

365-081/A
08.09.2020

	NAME	SIGN	DATE
DRAWN	J.DHANABAL		19.10.2020
CHECKED	R.RABIN		19.10.2020
APPROVED	S.MADHULINGAM		19.10.2020

TITLE: SPRING

DRG No. 4-V-J022-21801 REV. 00

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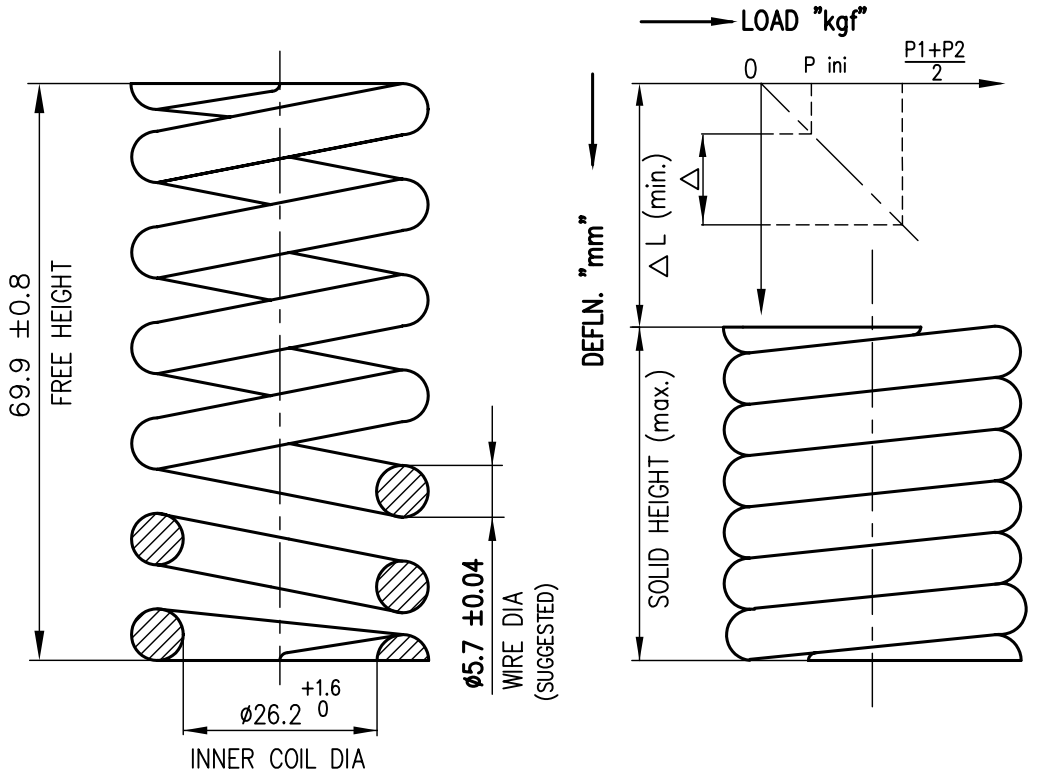

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0100240	
02	MAX. OUTSIDE DIA		mm	38.1
03	SPRING RATE		Kg/mm	5.910
04	AVERAGE DEFLECTION △L min.		mm	28.4
05	INITIAL LOADING P ini		Kg	25.2
06	TEST DEFLECTION △		mm	19.9
07	LOAD AT TEST DEFLECTION	P_1 MIN.	Kg	136.6
		P_2 MAX.	Kg	148.4
08	TILT DEFLECTION		mm	24.1

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	5.6 ±0.25
10	SPRING WEIGHT	Kg	0.13
11	PITCH	mm	10.5 ±0.3
12	DEVELOPED LENGTH OF ROD	mm	661
13	RAW MATERIAL DIA x LENGTH	mm	--
14	RAW MATERIAL WEIGHT	Kg	--
15	RAW MATERIAL CODE	--	
16	SPRING CODE	964150880000	
17	PROCESS OF MANUFACTURE	~~HOT~~/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A227 CL.I&II/IS 4454 (Part-1) Gr.SM/A228, REFER ASTM STD. FOR TENSILE STRENGTH & HARDNESS.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.		REV.			NAME	SIGN	DATE
02	ALTD:	01	ALTD: G.V	17.12.08	DRAWN: G.VENKATESWARALU		17.12.08
	CHKD:		CHKD: E.A	17.12.08	CHECKED: E.ATHIANNAVI		17.12.08
	APPD:		APPD: E.A	17.12.08	APPROVED: E.ATHIANNAVI		17.12.08

DRG. UPDATED & REDRAWN IN CAD.
DCP.NO.800783 DT.07.01.08

TITLE: SPRING

DRG No. 4-V-J024-21598 REV. 01

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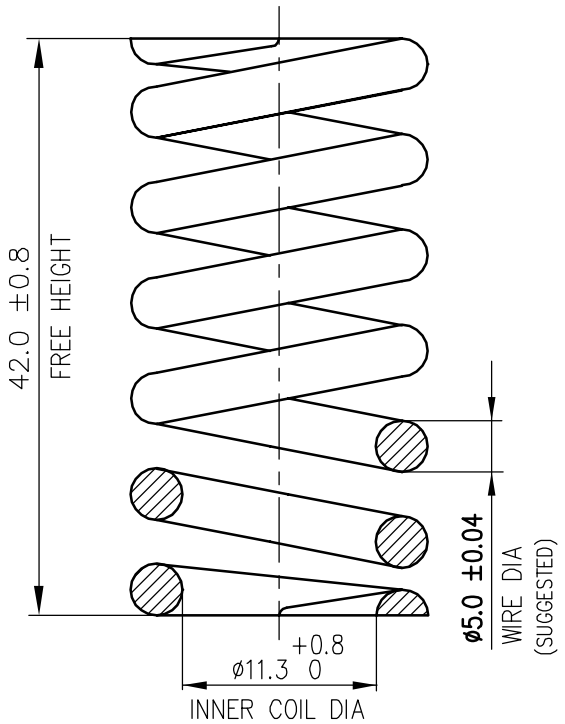

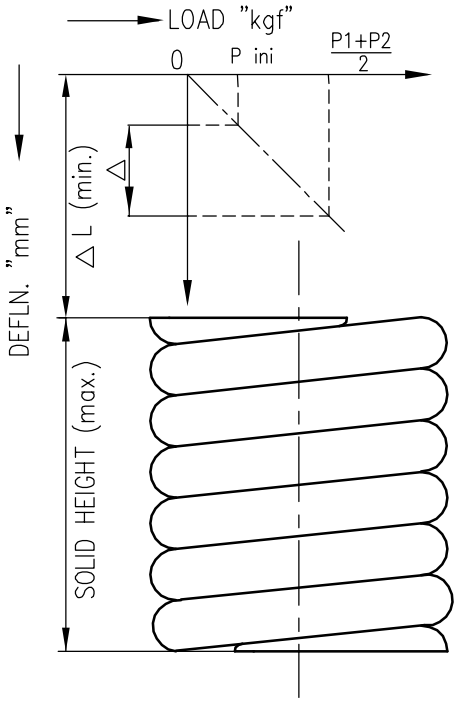

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		**1000260IX**	
02	MAX. OUTSIDE DIA		(mm)	22.8
03	SPRING RATE		(Kg/mm)	29.568
04	AVERAGE DEFLECTION △L min.		(mm)	8.2
05	INITIAL LOADING P ini		(Kgs)	36.4
06	TEST DEFLECTION △		(mm)	5.7
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	197.6
		P_2 MAX.	(Kgs)	214.5
08	TILT DEFLECTION		(mm)	7.0

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	5.0 ±0.25
10	SPRING WEIGHT	(Kgs)	0.05
11	PITCH	(mm)	6.49 ±0.4
12	DEVELOPED LENGTH OF ROD	(mm)	358
13	RAW MATERIAL DIA x LENGTH	(mm)	--
14	RAW MATERIAL WEIGHT	(Kgs)	--
15	RAW MATERIAL CODE	--	
16	SPRING CODE	**974625130000/ 964156650000**	
17	PROCESS OF MANUFACTURE	HOT/COLD COILING (NOTE-4)	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NONIBR** SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A637 GR.688 TYPE 1-INCONEL X750/ ASTM B637-UNS NO.7750.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.			REV.		
03	ALTD: A.P	06.02.16	02	ALTD: G.V	06.07.07
	CHKD: S.M	06.02.16		CHKD: E.A	06.07.07
	APPD: E.A	06.02.16		APPD: E.A	06.07.07

WIRE DIA, INNER COIL DIA AND MAX. OUTSIDE DIA REVISED DCP.NO.802077 Dt. 06-02-2016

DRG. UPDATED REDRAWN IN CAD. DCP.NO.800666 DT.27.03.2007

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		06.07.07
CHECKED	E.Athiannavi		06.07.07
APPROVED	E.Athiannavi		06.07.07

TITLE: SPRING

DRG No. 4-V-J026-21155 REV. 03

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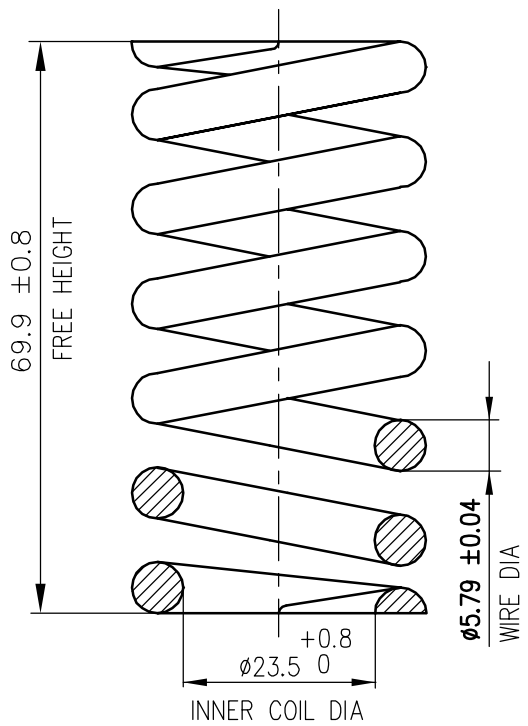

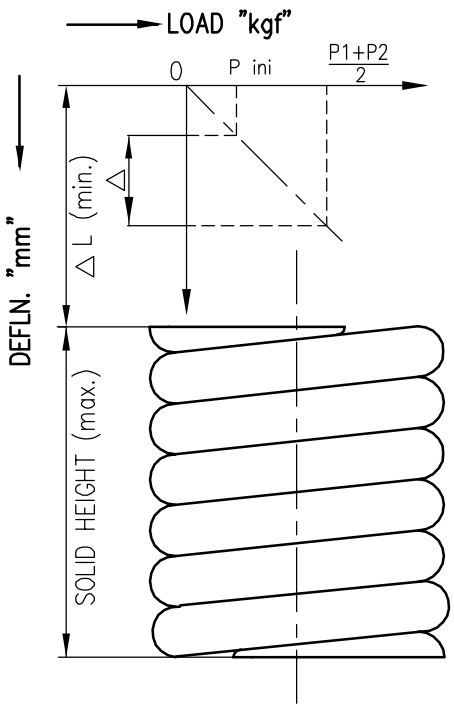

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0100260	
02	OUTSIDE DIA MAX. LIMIT		mm	38.1
03	SPRING RATE		Kg/mm	7.481
04	AVERAGE DEFLECTION △L min.		mm	22.4
05	INITIAL LOADING P ini		Kg	25.1
06	TEST DEFLECTION △		mm	15.6
07	LOAD AT TEST DEFLECTION	P_1 MIN.	Kg	136.3
		P_2 MAX.	Kg	148.0
08	TILT DEFLECTION		mm	19.0

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	6.1 ±0.25
10	SPRING WEIGHT	Kg	0.14
11	PITCH	mm	9.6 ±0.3
12	DEVELOPED LENGTH OF ROD	mm	653
13	RAW MATERIAL DIA x LENGTH	mm	--
14	RAW MATERIAL WEIGHT	Kg	--
15	RAW MATERIAL CODE	--	
16	SPRING CODE	964151210000	
17	PROCESS OF MANUFACTURE	~~HOT~~/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NON IBR SPRINGS
2. DATA GIVEN IN ROWS 11 TO 12 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST: ASTM A227 CL.I&II/IS 4454 (Part-1) Gr.SM/A228, REFER ASTM STD. FOR TENSILE STRENGTH & HARDNESS.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.		REV.		
02	ALTD:	01	ALTD: G.V	10.08.12
	CHKD:		CHKD: S.M	10.08.12
	APPD:		APPD: E.A	10.08.12

NOTES UPDATED
DCP.No.801269

	NAME	SIGN	DATE
DRAWN	MRC		10.04.98
CHECKED	KSR		10.04.98
APPROVED	VM		10.04.98

TITLE: SPRING

DRG No. 4-V-J026-21581 REV. 01

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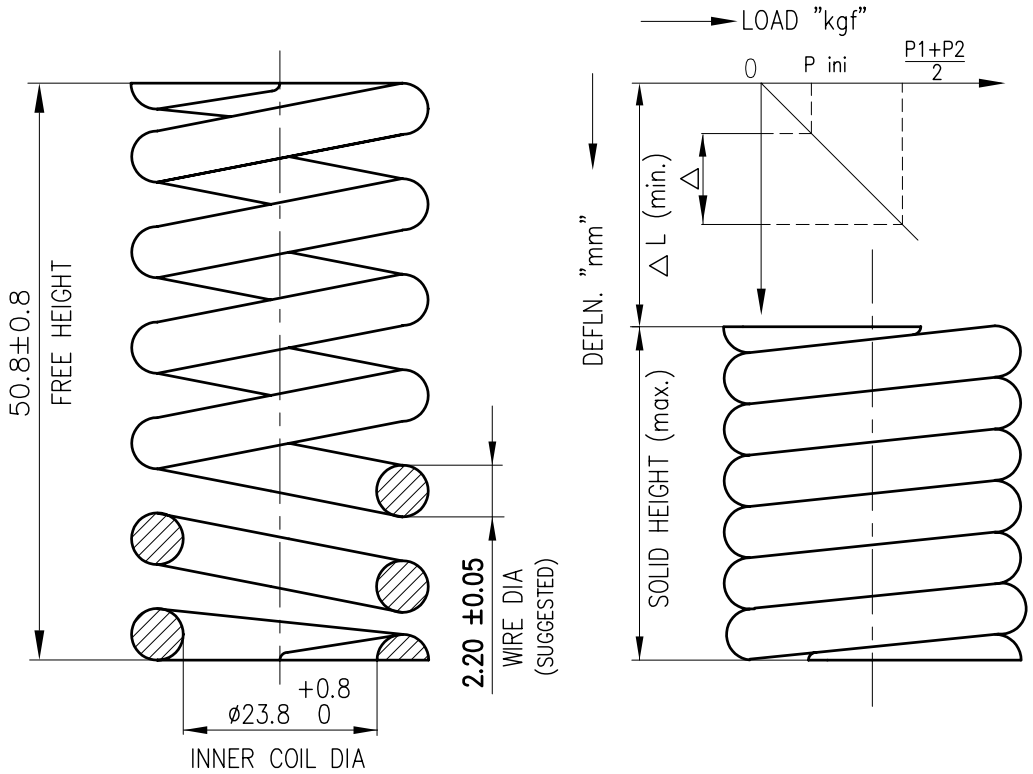

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0300840IX	
02	MAX. OUTSIDE DIA		(mm)	30.2
03	SPRING RATE		(Kg/mm)	0.1785
04	AVERAGE DEFLECTION △L min.		(mm)	31.8
05	INITIAL LOADING P ini		(Kgs)	0.86
06	TEST DEFLECTION △		(mm)	13.3
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	3.122
		P_2 MAX.	(Kgs)	3.362
08	TILT DEFLECTION		(mm)	27.0

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	6.9±1/4
10	SPRING WEIGHT	(Kgs)	0.02
11	PITCH	(mm)	6.9±0.3
12	DEVELOPED LENGTH OF ROD	(mm)	647.0
13	RAW MATERIAL LENGTH	(mm)	VENDOR TO DECIDE
14	RAW MATERIAL WEIGHT	(Kgs)	–
15	COATING	–	–
16	SPRING CODE	974622450000/ 964152610000	
17	PROCESS OF MANUFACTURE	~~HOT~~/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERENCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS: INCONEL X 750 (AMS 5699) TEST CERTIFICATE IS TO BE OBTAINED.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.		REV.		
02	ALTD:	01	ALTD: G.V	23.01.10
	CHKD:		CHKD: VPP	23.01.10
	APPD:		APPD: E.A	23.01.10

96 CODE ADDED AND DRG. UPDATED
DCP. NO. 800993 DT.16.10.09

	NAME	SIGN	DATE
DRAWN	KPL		14-01-92
CHECKED	VPP		14-01-92
APPROVED	KN		17-01-92

TITLE: SPRING

DRG No. 4-V-J084-21049 REV. 01

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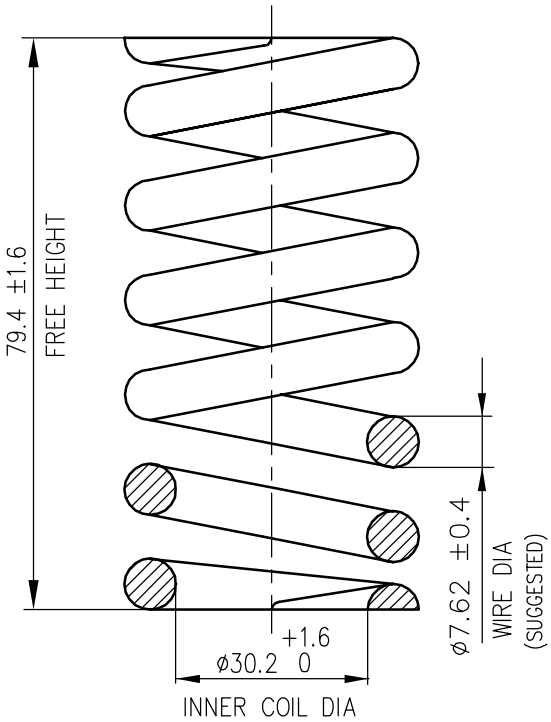

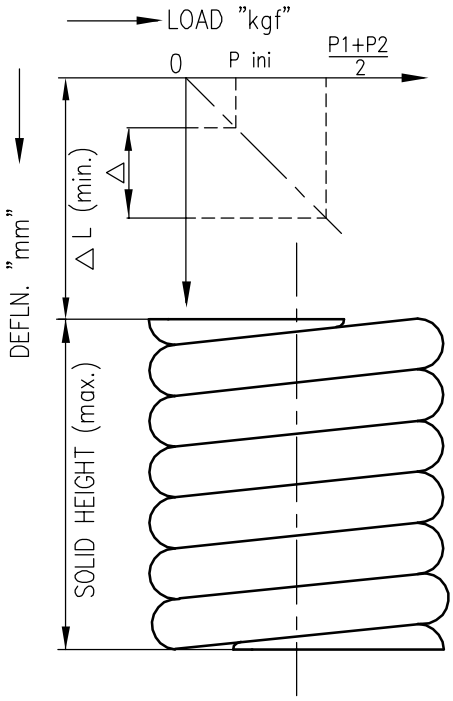

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0101190CR	
02	OUTSIDE DIA MAX. LIMIT		(mm)	50.8
03	SPRING RATE (±4%)		(Kg/mm)	12.159
04	SOLID DEFLECTION △L min.		(mm)	$27.5^{+2.4}_{-0}$
05	INITIAL LOADING P_{ini}		(Kgs)	50.1
06	TEST DEFLECTION △		(mm)	19.2
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	272.1
		P_2 MAX.	(Kgs)	295.5
08	TILT DEFLECTION		(mm)	23.3

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$5.0-0.5^{0}$
10	SPRING WEIGHT	(Kgs)	0.25
11	PITCH	(mm)	13.5±0.7
12	DEVELOPED LENGTH OF ROD	(mm)	686
13	RAW MATERIAL DIA x LENGTH	(mm)	--
14	RAW MATERIAL WEIGHT	(Kgs)	--
15	RAW MATERIAL CODE	--	
16	SPRING CODE	974627220000/ 964162150000	
17	PROCESS OF MANUFACTURE	HOT/~~COLD~~ COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NON IBR SPRINGS AND DESIGNED FOR SAFETY VALVE APPLICATION ONLY.
2. FREE HEIGHT, SPRING RATE & SOLID DEFLECTION SHOULD BE MAINTAINED AND OTHER PARAMETERS TO BE DECIDED BY VENDOR, ACCORDING TO THE MATERIAL SELECTED IN THIS DRAWING.
3. ACCEPTABLE SPRING MATERIALS TO ATTEST:
   ASTM A322-6150/5160, A304-5160H/6150H/4161H, A401, A231
   BS970 Pt2-735A51/735H51, BS2803-735A50/685A55
   51CrMoV4/50CrV4/51CrV4/52CrMoV4, EN10270-2/IS4454-2
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.		REV.		
02	ALTD:	01	ALTD: G.V	04.05.13
	CHKD:		CHKD: S.M	04.05.13
	APPD:		APPD: E.A	04.05.13

DRAWING UPDATED
DCP.No.801440

365-081

	NAME	SIGN	DATE
DRAWN	A.Paramu		05.12.00
CHECKED	K.S.Raju		05.12.00
APPROVED	K.S.Raju		05.12.00

TITLE: SPRING

DRG No. 4-V-J119-21681 REV. 01

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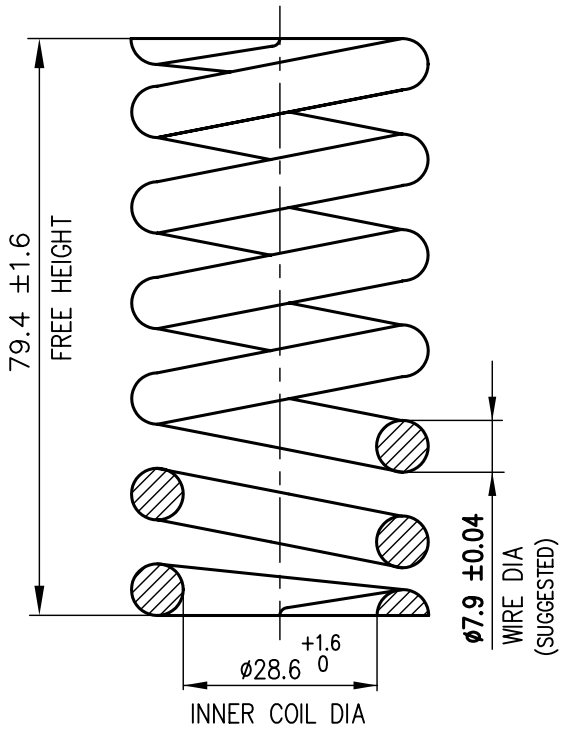

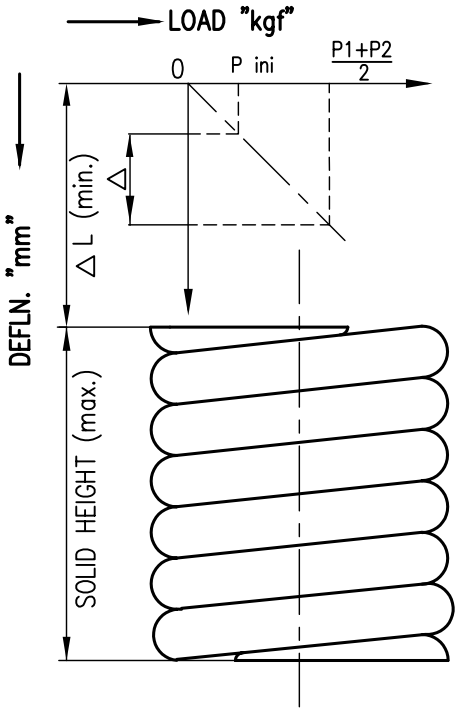

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0101210CR	
02	MAX. OUTSIDE DIA		mm	50.8
03	SPRING RATE		Kg/mm	15.320
04	AVERAGE DEFLECTION △L min.		mm	27.0
05	INITIAL LOADING P ini		Kg	62.1
06	TEST DEFLECTION △		mm	18.9
07	LOAD AT TEST DEFLECTION	P_1 MIN.	Kg	337.4
		P_2 MAX.	Kg	366.4
08	TILT DEFLECTION		mm	23.0

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	5.3 $^{0}_{-0.5}$
10	SPRING WEIGHT	Kg	0.26
11	PITCH	mm	13.2 ±0.7
12	DEVELOPED LENGTH OF ROD	mm	672
13	RAW MATERIAL DIA x LENGTH	mm	--
14	RAW MATERIAL WEIGHT	Kg	--
15	RAW MATERIAL CODE	--	
16	SPRING CODE	974626480000/ 964153240000	
17	PROCESS OF MANUFACTURE	HOT/COLD COILING (NOTE-4)	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A689/A322 GR.5160/6150, ASTM A401, ASTM A689/A304 GR.5160H/6150H/4161H, BS PT2-735A50/735A51/735H51, BS 2803-735A50/685A55, DIN 17221 GR.51CrMoV4.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.			
02	ALTD: G.V	17.12.08	
	CHKD: E.A	17.12.08	
	APPD: E.A	17.12.08	

DRG. UPDATED & REDRAWN IN CAD.
DCP.NO.800783 DT.07.01.08

REV.			
01	ALTD: MRC	07.07.97	
	CHKD: KSR	07.07.97	
	APPD: KSR	07.07.97	

RETRACED AND UPDATED
DCN NO. SR:0189

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		17.12.08
CHECKED	E.ATHIANNAVI		17.12.08
APPROVED	E.ATHIANNAVI		17.12.08

TITLE: SPRING

DRG No. 4-V-J121-21220 REV. 02

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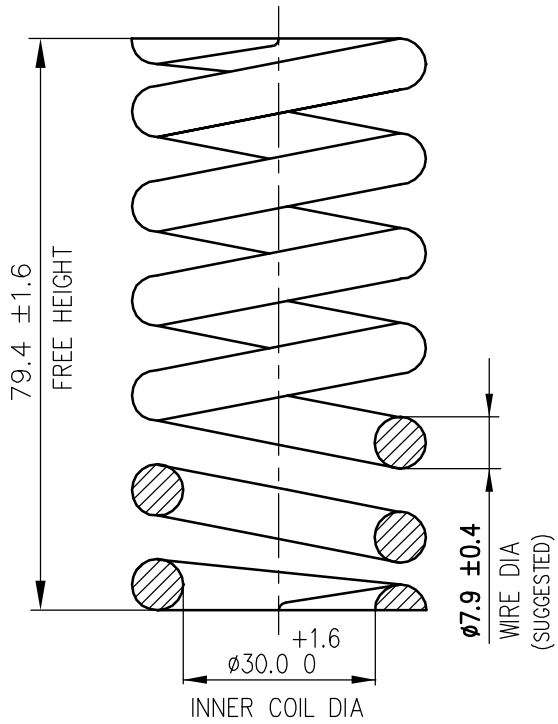

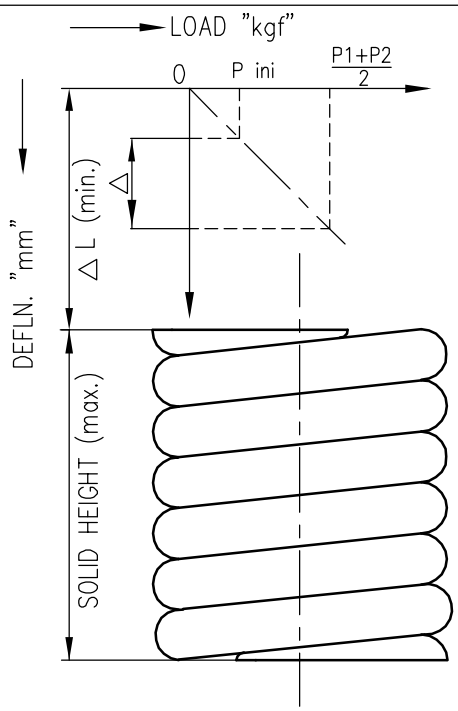

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0301210CR	
02	OUTSIDE DIA MAX. LIMIT		(mm)	50.8
03	SPRING RATE		(Kg/mm)	14.534
04	AVERAGE DEFLECTION △L min.		(mm)	27.1
05	INITIAL LOADING P ini		(Kgs)	59.1
06	TEST DEFLECTION △		(mm)	18.9
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	320.7
		P_2 MAX.	(Kgs)	348.3
08	TILT DEFLECTION		(mm)	23.0

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$5.0^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	0.302
11	PITCH	(mm)	14.0 ±0.8
12	DEVELOPED LENGTH OF ROD	(mm)	784
13	SPRING CODE		974628920000 964161910000
14	PROCESS OF MANUFACTURE		HOT/COLD COILING (NOTE-4)

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 12 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A689/A322 GR.5160/6150, ASTM A401, ASTM A689/A304 GR.5160H/6150H/4161H, BS PT2-735A50/735A51/735H51, BS 2803-735A50/685A55, DIN 17221 GR.51CrMoV4.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.	ALTD:	REV.	ALTD:
02	CHKD:	01	CHKD:
	APPD:		APPD:

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		25.07.12
CHECKED	S.MADHULINGAM		25.07.12
APPROVED	E.ATHIANNAVI		25.07.12

TITLE: SPRING

DRG No. 4-V-J121-21818 REV. 00

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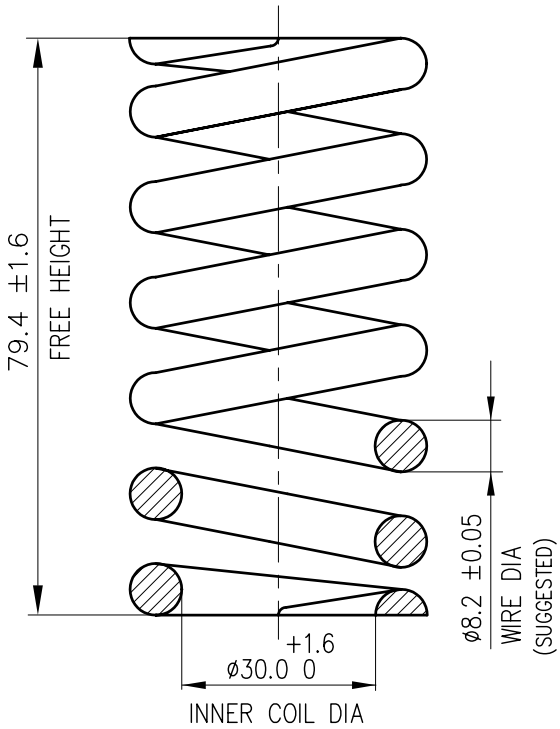

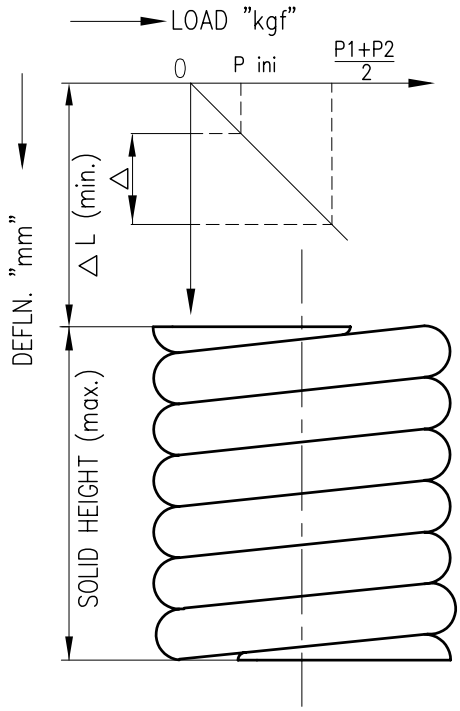

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0101220CR	
02	OUTSIDE DIA MAX. LIMIT		(mm)	50.8
03	SPRING RATE		(Kg/mm)	16.962
04	AVERAGE DEFLECTION △L min.		(mm)	27.0
05	INITIAL LOADING P ini		(Kgs)	68.8
06	TEST DEFLECTION △		(mm)	18.9
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	373.6
		P_2 MAX.	(Kgs)	405.7
08	TILT DEFLECTION		(mm)	23.0

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$4.9^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	0.271
11	PITCH	(mm)	14.3 ±0.8
12	DEVELOPED LENGTH OF ROD	(mm)	654
13	RAW MATERIAL DIA x LENGTH	(mm)	--
14	PROCESS OF MANUFACTURE	HOT/COLD COILING (NOTE-4)	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NON IBR SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 13 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST: ASTM A231 OR BS2803 GR.735A50/685A55.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.	ALTD:	REV.	ALTD:
02	CHKD:	01	CHKD:
	APPD:		APPD:

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		27.11.10
CHECKED	S.MADHULINGAM		27.11.10
APPROVED	E.ATHIANNAVI		27.11.10

TITLE: SPRING

DRG No. 4-V-J122-21799 REV. 00

COMP. CODE: 974628190000/964160780000

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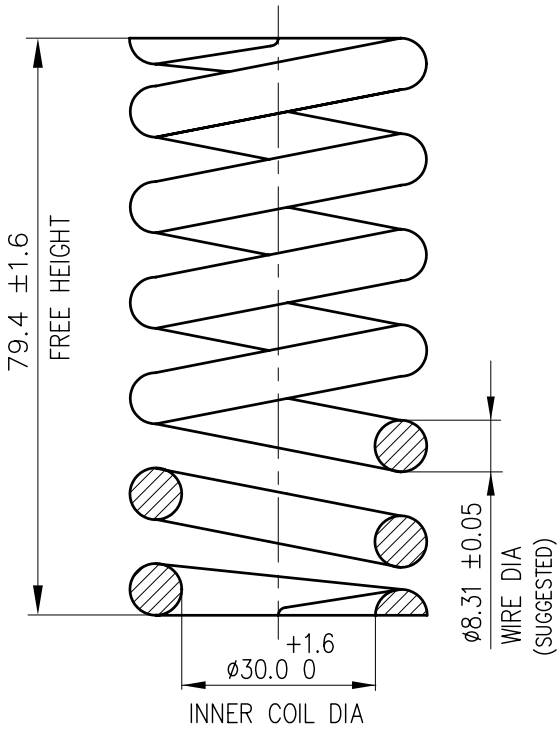

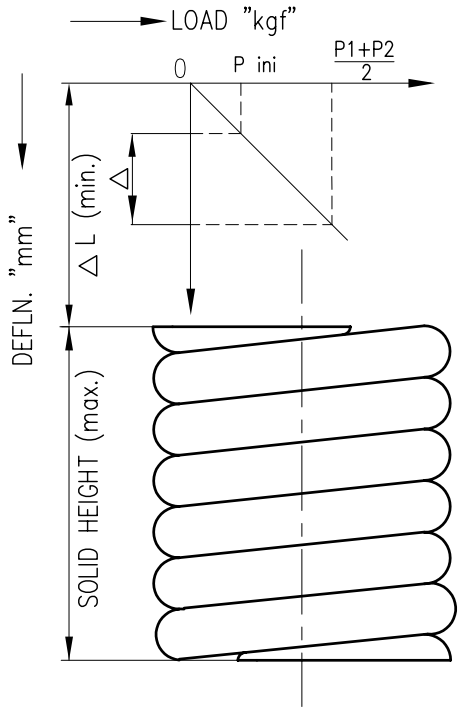

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0301230CR	
02	OUTSIDE DIA MAX. LIMIT		(mm)	50.8
03	SPRING RATE		(Kg/mm)	17.926
04	AVERAGE DEFLECTION △L min.		(mm)	26.7
05	INITIAL LOADING P ini		(Kgs)	71.9
06	TEST DEFLECTION △		(mm)	18.7
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	390.8
		P_2 MAX.	(Kgs)	424.3
08	TILT DEFLECTION		(mm)	22.7

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$4.8\ ^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	0.277
11	PITCH	(mm)	14.4 ±0.8
12	DEVELOPED LENGTH OF ROD	(mm)	650
13	PROCESS OF MANUFACTURE	HOT/COLD COILING (NOTE-4)	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NON IBR SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 13 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST: ASTM A231 OR BS2803 GR.735A50/685A55.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.	ALTD:	REV.	ALTD:
02	CHKD:	01	CHKD:
	APPD:		APPD:

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		24.11.10
CHECKED	S.MADHULINGAM		24.11.10
APPROVED	E.ATHIANNAVI		24.11.10

TITLE: SPRING

DRG No. 4-V-J123-21798 REV. 00

COMP. CODE: 974628170000/964160760000

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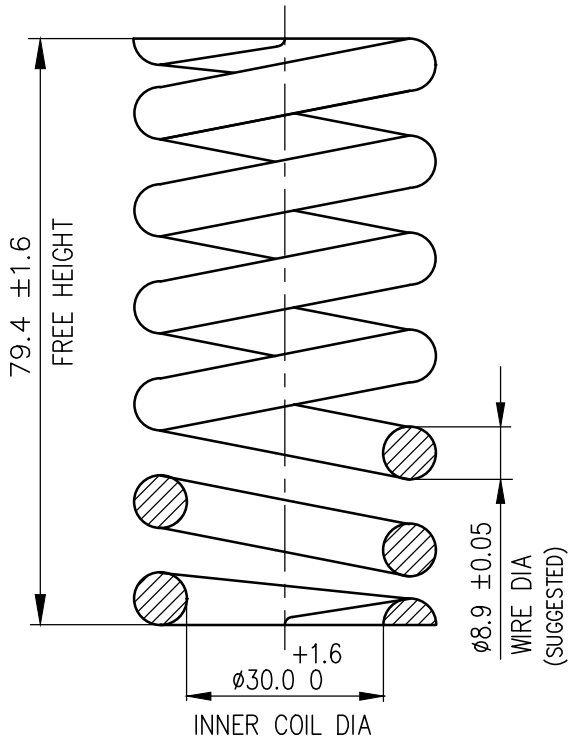

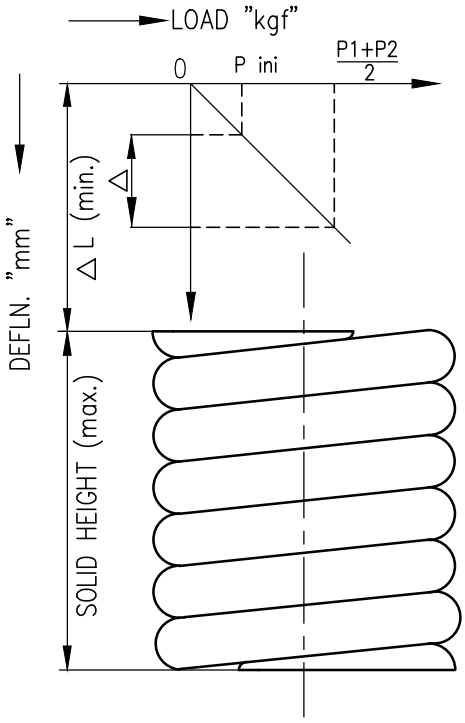

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0101240CR	
02	OUTSIDE DIA MAX. LIMIT		(mm)	50.8
03	SPRING RATE		(Kg/mm)	21.033
04	AVERAGE DEFLECTION △L min.		(mm)	20.6
05	INITIAL LOADING P ini		(Kgs)	65.0
06	TEST DEFLECTION △		(mm)	14.4
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	353.2
		P_2 MAX.	(Kgs)	383.4
08	TILT DEFLECTION		(mm)	17.5

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$5.1\ ^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	0.40
11	PITCH	(mm)	13.2 ±0.7
12	DEVELOPED LENGTH OF ROD	(mm)	821
13	PROCESS OF MANUFACTURE	HOT/COLD COILING (NOTE-4)	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NONIBR SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 13 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO ATTEST:
   ASTM A322-6150/5160, A304-5160H/6150H/4161H, A401, A231
   BS970 Pt2-735A51/735H51, BS2803-735A50/685A55
   51CrMoV4/50CrV4/51CrV4/52CrMoV4, EN10270-2/IS4454-2
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.	ALTD:	REV.	ALTD:
02	CHKD:	01	CHKD:
	APPD:		APPD:

	NAME	SIGN	DATE
DRAWN	PARAMASIVAM.A		01-01-18
CHECKED	RABIN.R		01-01-18
APPROVED	ATHIANNAVI.E		01-01-18

TITLE: SPRING

DRG No. 4-V-J124-21863 REV. 00

COMP. CODE: 974626470000

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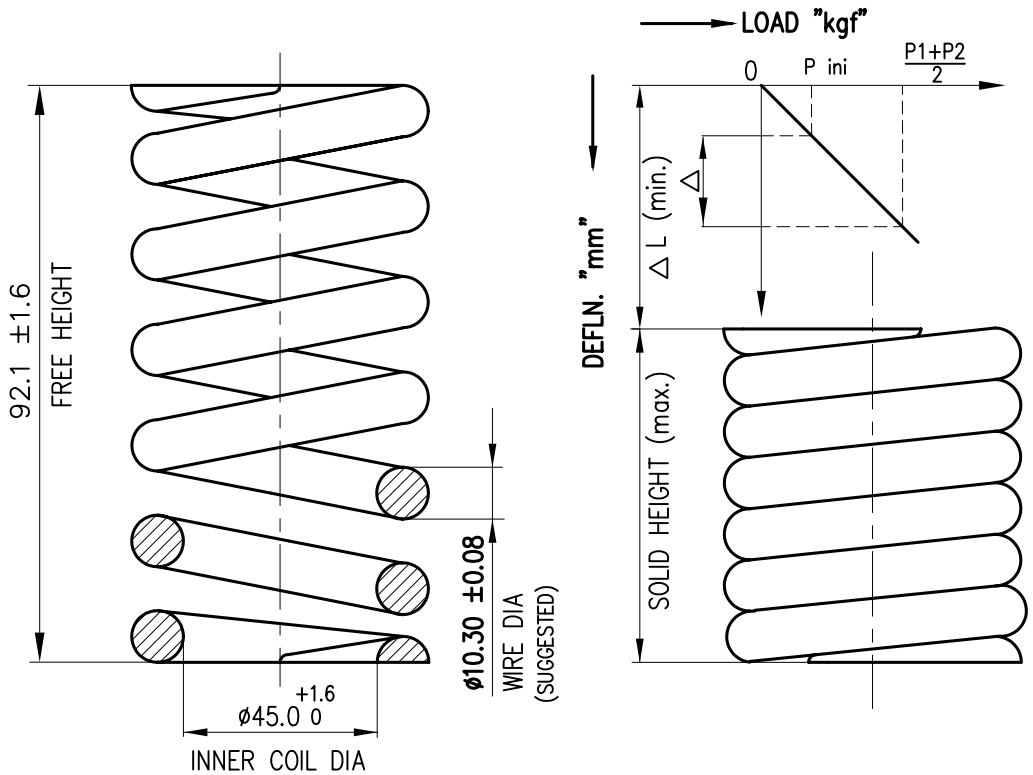

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0102120CR	
02	MAX. OUTSIDE DIA		mm	69.9
03	SPRING RATE		Kg/mm	14.105
04	AVERAGE DEFLECTION Δ L min.		mm	31.2
05	INITIAL LOADING P ini		Kg	66.1
06	TEST DEFLECTION Δ		mm	21.9
07	LOAD AT TEST DEFLECTION	P_1 MIN.	Kg	359.2
		P_2 MAX.	Kg	390.0
08	TILT DEFLECTION		mm	26.6

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$4.8^{0}_{-0.5}$
10	SPRING WEIGHT	Kg	0.6
11	PITCH	mm	17.6 ±0.8
12	DEVELOPED LENGTH OF ROD	mm	935
13	RAW MATERIAL DIA x LENGTH	mm	ø18x1420
14	RAW MATERIAL WEIGHT	Kg	2.9
15	RAW MATERIAL CODE	153274050100	
16	SPRING CODE	931726640000/ 964156790000/ 974627420000	
17	PROCESS OF MANUFACTURE	HOT/COLD COILING (NOTE-4)	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A304-6150H,ASTM A322-6150,BS970/2-735A51, BS970/2-735H51,BS2803-735A50,BS2803-685A55.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.		REV.		
02	ALTD:	01	ALTD: G.V	29.03.08
	CHKD:		CHKD: E.A	29.03.08
	APPD:		APPD: E.A	29.03.08

(REF: 4VJ21223664/02)

DRG. UPDATED & REDRAWN IN CAD.
DCP.NO.800783 DT.07.01.08

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		29.03.08
CHECKED	E.ATHIANNAVI		29.03.08
APPROVED	E.ATHIANNAVI		29.03.08

TITLE: SPRING

DRG No. 4-V-J212-21664 REV. 01

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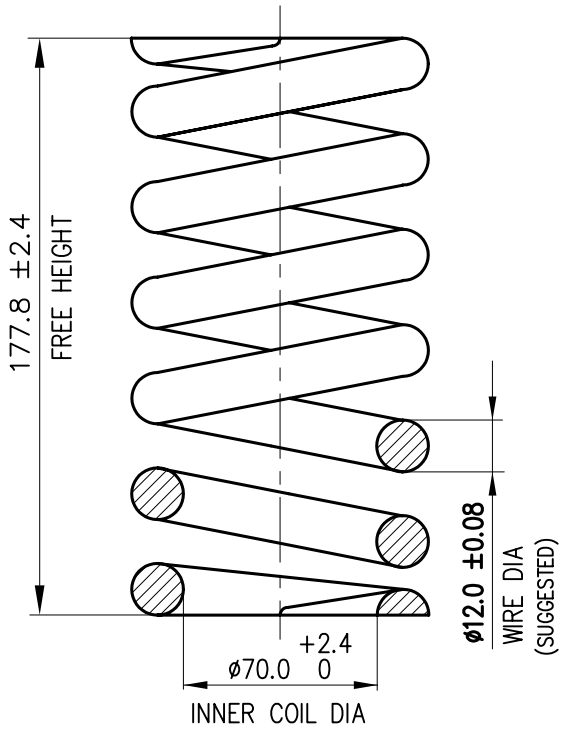

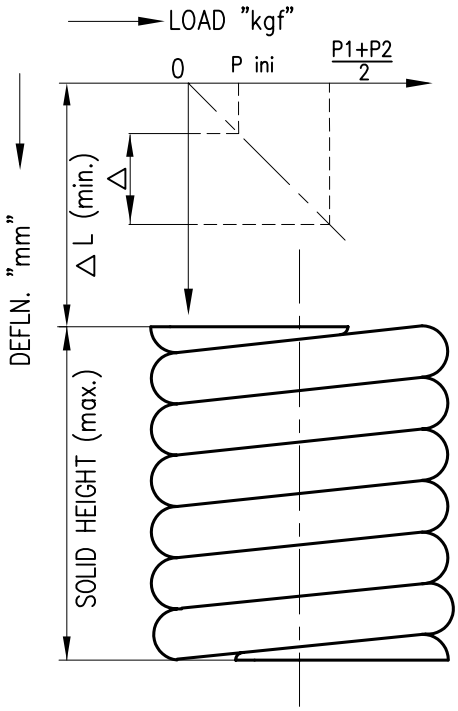

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0103050CR	
02	MAX. OUTSIDE DIA		(mm)	95.0
03	SPRING RATE		(Kg/mm)	5.839
04	AVERAGE DEFLECTION ΔL min.		(mm)	84.1
05	INITIAL LOADING P_{ini}		(Kgs)	73.7
06	TEST DEFLECTION Δ		(mm)	58.9
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	400.1
		P_2 MAX.	(Kgs)	434.4
08	TILT DEFLECTION		(mm)	71.5

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	6.5 $^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	1.6
11	PITCH	(mm)	25.9 ±1.0
12	DEVELOPED LENGTH OF ROD	(mm)	1798
13	RAW MATERIAL DIA x LENGTH	(mm)	ø18x2400
14	RAW MATERIAL WEIGHT	(Kgs)	4.8
15	RAW MATERIAL CODE	153274050100	
16	SPRING CODE	931723260000/ 964156750000/ 974627850000	
17	PROCESS OF MANUFACTURE	HOT/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A304-6150H,ASTM A322-6150,BS970/2-735A51, BS970/2-735H51,BS2803-735A50,BS2803-685A55.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.		REV.			
04	ALTD:	03	ALTD:	G.V	25.01.08
	CHKD:		CHKD:	E.A	25.01.08
	APPD:		APPD:	E.A	25.01.08

DRG. UPDATED REDRAWN IN CAD.
DCP.NO.800783 DT.07.01.08

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		25.01.08
CHECKED	E.ATHIANNAVI		25.01.08
APPROVED	E.ATHIANNAVI		25.01.08

TITLE: SPRING

DRG No. 4-V-J305-21326 REV. 03

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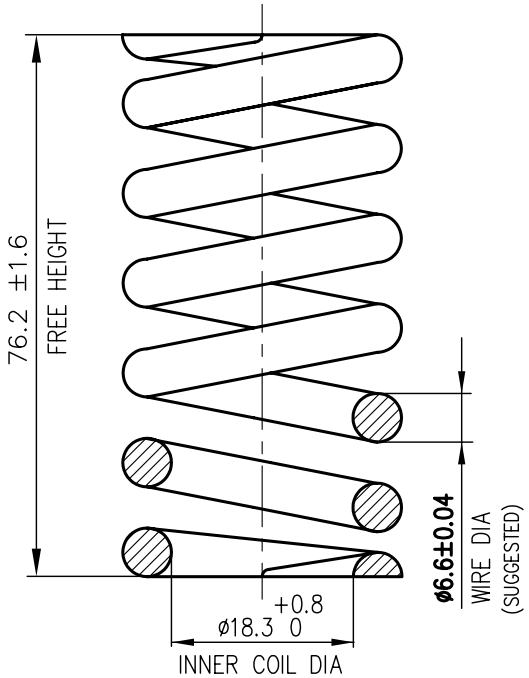

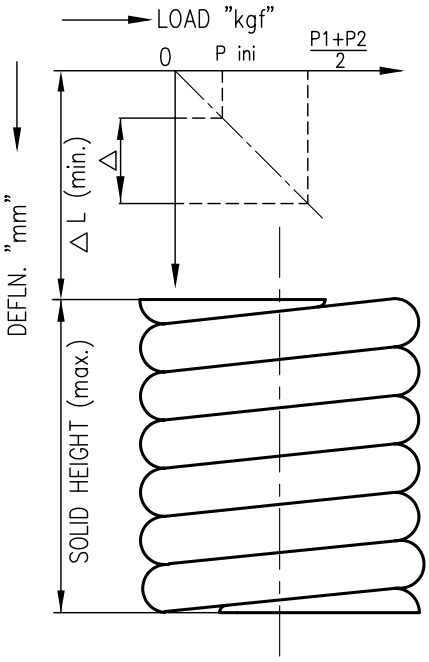

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		**1100270IX**	
02	MAX. OUTSIDE DIA		(mm)	34.9
03	SPRING RATE		(Kg/mm)	17.895
04	AVERAGE DEFLECTION ΔL min.		(mm)	16.0
05	INITIAL LOADING P_{ini}		(Kgs)	42.8
06	TEST DEFLECTION Δ		(mm)	11.2
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	232.6
		P_2 MAX.	(Kgs)	252.6
08	TILT DEFLECTION		(mm)	13.6

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	7.0 ±0.25
10	SPRING WEIGHT	(Kgs)	0.18
11	PITCH	(mm)	9.0 ±0.6
12	DEVELOPED LENGTH OF ROD	(mm)	630
13	RAW MATERIAL DIA x LENGTH	(mm)	--
14	RAW MATERIAL WEIGHT	(Kgs)	--
15	RAW MATERIAL CODE	--	
16	SPRING CODE	**974622380000/ 964156290000**	
17	PROCESS OF MANUFACTURE	~~HOT~~/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NONIBR** SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A637 GR.688 TYPE 1–INCONEL X750/ ASTM B637–UNS NO.7750.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.			
03	ALTD: G.V	15.05.07	
	CHKD: E.A	15.05.07	
	APPD: E.A	15.05.07	

DRG. UPDATED & REDRAWN IN CAD.
DCP.NO.800666 DT.27.03.2007

REV.			
02	ALTD:	MRC	24.04.97
	CHKD:	KSR	24.04.97
	APPD:	KSR	24.04.97

RETRACED AND UPDATED
DCN NO. SR:0188

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		15.05.07
CHECKED	E.Athiannavi		15.05.07
APPROVED	E.Athiannavi		15.05.07

TITLE: SPRING

DRG No. 4–V–J027–21005 REV. 03

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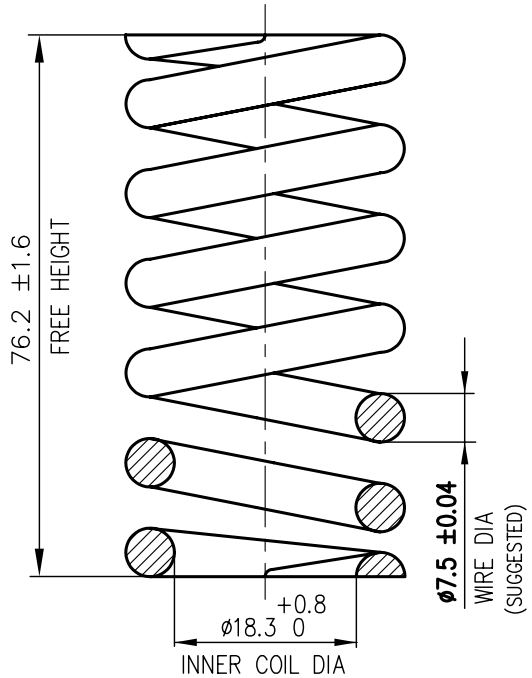

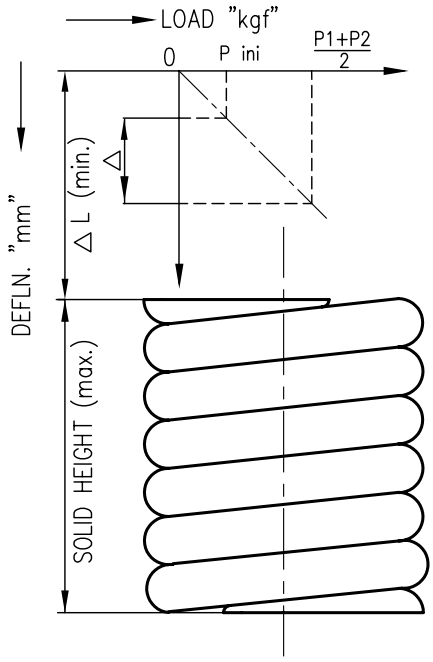

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		**1100280IX**	
02	MAX. OUTSIDE DIA		(mm)	34.9
03	SPRING RATE		(Kg/mm)	29.925
04	AVERAGE DEFLECTION △L min.		(mm)	14.6
05	INITIAL LOADING P_{ini}		(Kgs)	59.2
06	TEST DEFLECTION △		(mm)	10.5
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	355.3
		P_2 MAX.	(Kgs)	392.8
08	TILT DEFLECTION		(mm)	12.5

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	6.2 ±0.25
10	SPRING WEIGHT	(Kgs)	0.2
11	PITCH	(mm)	9.8 ±0.6
12	DEVELOPED LENGTH OF ROD	(mm)	590
13	RAW MATERIAL DIA x LENGTH	(mm)	--
14	RAW MATERIAL WEIGHT	(Kgs)	--
15	RAW MATERIAL CODE	--	
16	SPRING CODE	**974622390000/ 964156110000**	
17	PROCESS OF MANUFACTURE	~~HOT~~/COLD COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NONIBR** SPRINGS.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A637 GR.688 TYPE 1–INCONEL X750/ ASTM B637–UNS NO.7750.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.			
03	ALTD: G.V		08.06.07
	CHKD: E.A		08.06.07
	APPD: E.A		08.06.07

REV.			
02	ALTD:	MRC	15.02.00
	CHKD:	KSR	15.02.00
	APPD:	KSR	15.02.00

96 CODE & NOTE–4 ADDED.
DRG. UPDATED & REDRAWN IN CAD.
DCP.NO.800686 DT.08.06.2007

MATL.SPECN: ASTM B637 WAS A937 GR.688 TYPE–1
DCN: SR: 0243

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		08.06.07
CHECKED	E.Athiannavi		08.06.07
APPROVED	E.Athiannavi		08.06.07

TITLE: SPRING

DRG No. 4–V–J028–21046 REV. 03

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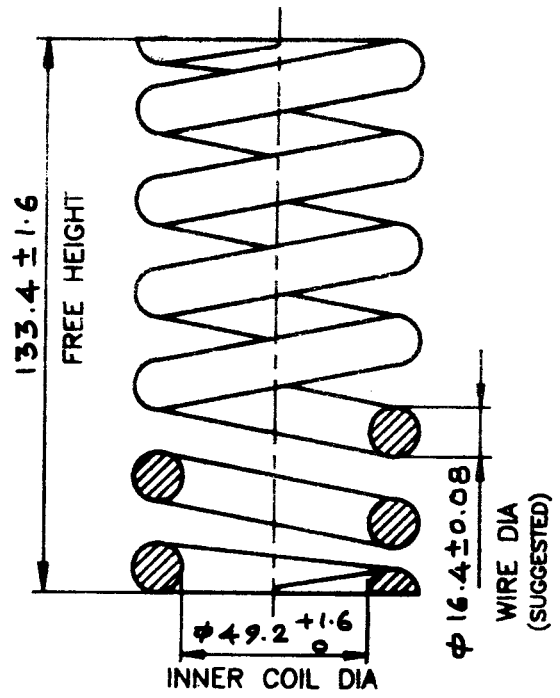

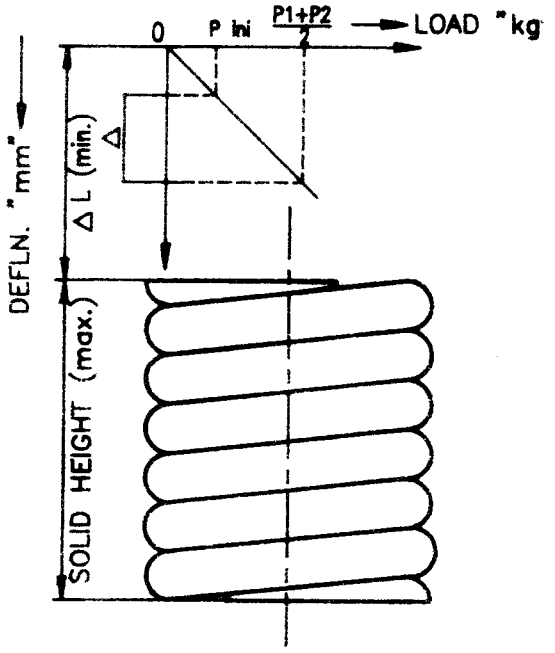

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		0102700SY	
02	MAX. OUTSIDE DIA		(mm)	88.9
03	SPRING RATE		(Kg/mm)	47.851
04	AVERAGE DEFLECTION ΔL min.		(mm)	32.8
05	INITIAL LOADING P ini		(Kgs)	235.2
06	TEST DEFLECTION Δ		(mm)	17.2
07	LOAD AT TEST DEFLECTION	P1 MIN.	(Kgs)	1004.6
		P2 MAX.	(Kgs)	1110.4
08	TILT DEFLECTION		(mm)	22.1

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO.OF COILS	NOS	4.6 ± 0.25
10	SPRING WEIGHT	(Kgs)	2.0
11	PITCH	(mm)	23.6 ± 0.8
12	DEVELOPED LENGTH OF ROD	(mm)	1165
13	RAW MATERIAL DIA. x LENGTH	(mm)	φ16.4 x 1310
14	RAW MATERIAL WEIGHT	(Kgs)	2.3
15	RAW MATERIAL CODE		—
16	SPRING CODE		974624770000
17	PROCESS OF MANUFACTURE		[redacted]/COLD COILING & STRAIN HARDENED.

XQI

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NON-IBR APPLICATION.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERENCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST. ASTM A 276 TYPE 316.

REV.		REV.	
03	ALTD:	02	ALTD:
	CHKD:		CHKD:
	APPD:		APPD:

RETRACED & UPDATED.

DCN: SR:0189 7.7.97

	NAME	SIGN	DATE
DRAWN	MRC / [redacted]		7.7.92
CHECKED	KSR / [redacted]		7.7.92
APPROVED	KSR / [redacted]		7.7.92

TITLE: SPRING

DRG No. 4-V-J270-21043 REVISION 02

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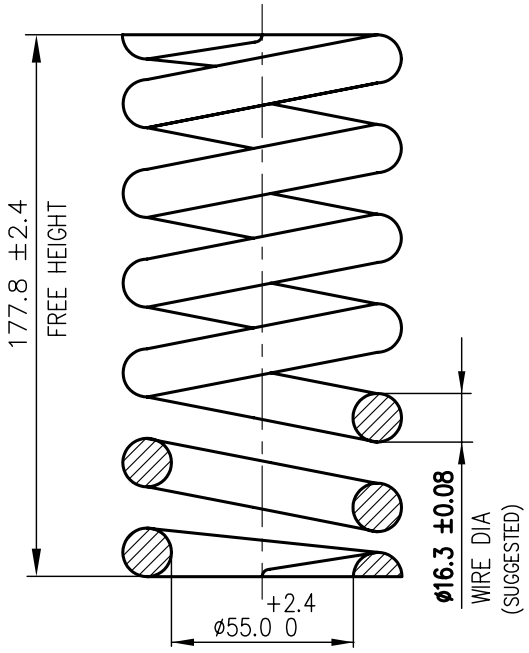
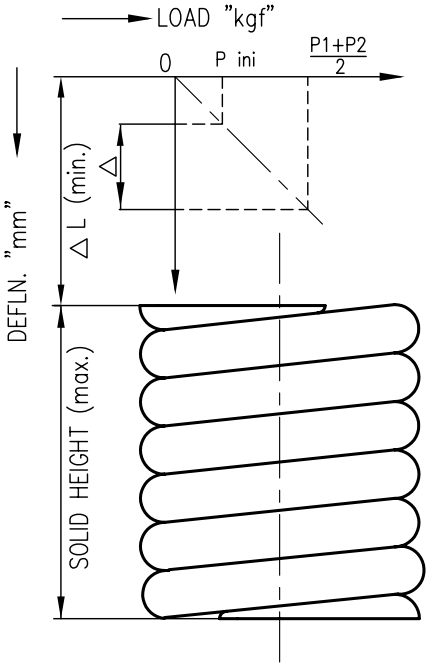
CORPORATE DRG ID TP-DG-4-V-J270-21043

CORPORATE DRG ID TP-DG-4-V-J270-21043

ALL DIMENSIONS ARE IN MM





ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		**0303140CR**	
02	MAX. OUTSIDE DIA		(mm)	98.4
03	SPRING RATE		(Kg/mm)	27.961
04	AVERAGE DEFLECTION △L min.		(mm)	49.8
05	INITIAL LOADING P_{ini}		(Kgs)	208.8
06	TEST DEFLECTION △		(mm)	34.8
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	1134.5
		P_2 MAX.	(Kgs)	1231.9
08	TILT DEFLECTION		(mm)	42.3

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$7.1\ ^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	2.741
11	PITCH	(mm)	23.9 ±0.9
12	DEVELOPED LENGTH OF ROD	(mm)	1673
13	RAW MATERIAL DIA x LENGTH	(mm)	ø25x2190
14	RAW MATERIAL WEIGHT	(Kgs)	8.439
15	RAW MATERIAL CODE	153274090000	
16	SPRING CODE	**931724410000**	
17	PROCESS OF MANUFACTURE	HOT/~~COLD~~ COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A322 GR.6150.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.				
02	ALTD:	REV. 01	ALTD: G.V	21.06.07
	CHKD:		CHKD: E.A	21.06.07
	APPD:		APPD: E.A	21.06.07

DRG. UPDATED & REDRAWN IN CAD, DCP.NO.800666 DT.27.03.2007

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		21.06.07
CHECKED	E.Athiannavi		21.06.07
APPROVED	E.Athiannavi		21.06.07

TITLE: SPRING

DRG No. 4–V–J314–21441 REV. 01

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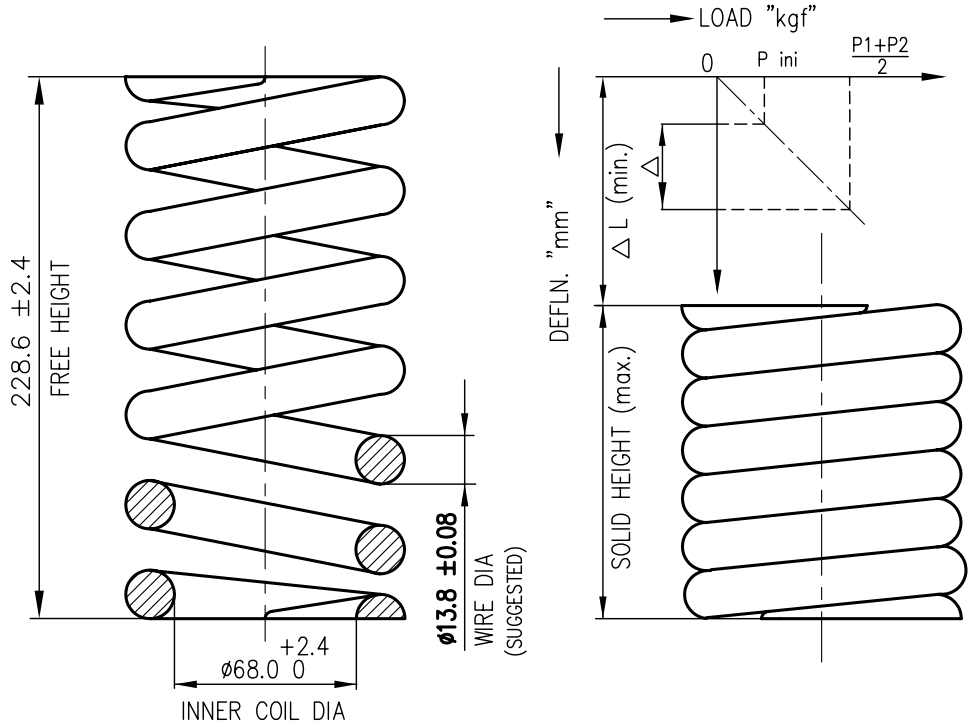
ALL DIMENSIONS ARE IN MM



ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		**0103840CR**	
02	MAX. OUTSIDE DIA		(mm)	123.8
03	SPRING RATE		(Kg/mm)	7.856
04	AVERAGE DEFLECTION △L min.		(mm)	100.6
05	INITIAL LOADING P_{ini}		(Kgs)	118.6
06	TEST DEFLECTION △		(mm)	70.4
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	644.0
		P_2 MAX.	(Kgs)	699.3
08	TILT DEFLECTION		(mm)	85.5

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$8.5^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	2.7
11	PITCH	(mm)	26.7 ±0.9
12	DEVELOPED LENGTH OF ROD	(mm)	2269
13	RAW MATERIAL DIA x LENGTH	(mm)	ø18x2800
14	RAW MATERIAL WEIGHT	(Kgs)	5.6
15	RAW MATERIAL CODE	153274050100	
16	SPRING CODE	**931726890000**	
17	PROCESS OF MANUFACTURE	HOT/~~COLD~~ COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A322 GR.6150.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.	ALTD:	REV.	ALTD:
02	CHKD:	01	CHKD:
	APPD:		APPD:

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		20.03.07
CHECKED	E.Athiannavi		20.03.07
APPROVED	E.Athiannavi		20.03.07

TITLE: SPRING

DRG No. 4-V-J384-21689 REV. 00

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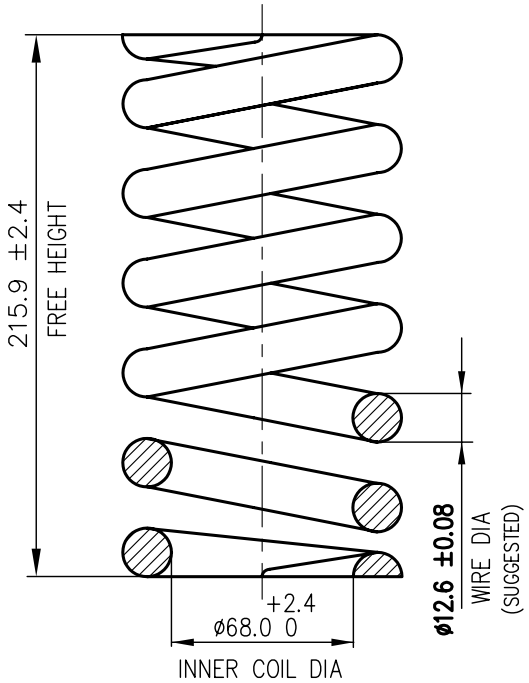

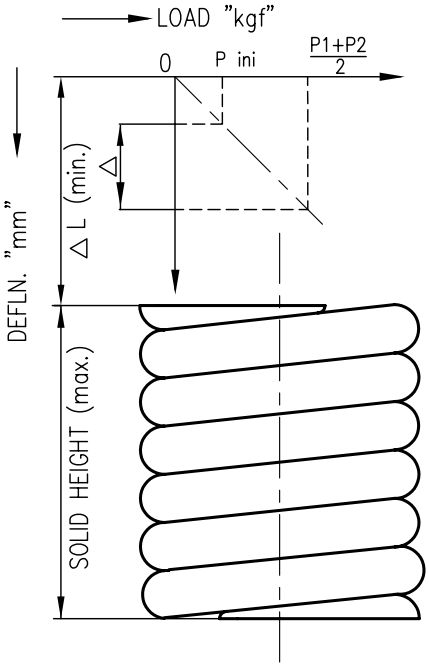

ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		**0104040CR**	
02	MAX. OUTSIDE DIA		(mm)	101.6
03	SPRING RATE		(Kg/mm)	6.338
04	AVERAGE DEFLECTION △L min.		(mm)	101.9
05	INITIAL LOADING P_{ini}		(Kgs)	96.8
06	TEST DEFLECTION △		(mm)	71.3
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	526.2
		P_2 MAX.	(Kgs)	571.3
08	TILT DEFLECTION		(mm)	86.6

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$7.7\ ^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	2.0
11	PITCH	(mm)	27.2 ±0.9
12	DEVELOPED LENGTH OF ROD	(mm)	2039
13	RAW MATERIAL DIA x LENGTH	(mm)	ø18x2690
14	RAW MATERIAL WEIGHT	(Kgs)	5.4
15	RAW MATERIAL CODE	153274050100	
16	SPRING CODE	**931725680000**	
17	PROCESS OF MANUFACTURE	HOT/~~COLD~~ COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A322 GR.6150.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.			REV.		
02	ALTD:		01	ALTD: G.V	03.07.07
	CHKD:			CHKD: E.A	03.07.07
	APPD:			APPD: E.A	03.07.07

DRG. UPDATED & REDRAWN IN CAD, DCP.NO.800666 DT.27.03.2007

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		03.07.07
CHECKED	E.Athiannavi		03.07.07
APPROVED	E.Athiannavi		03.07.07

TITLE: SPRING

DRG No. 4-V-J404-21568 REV. 01

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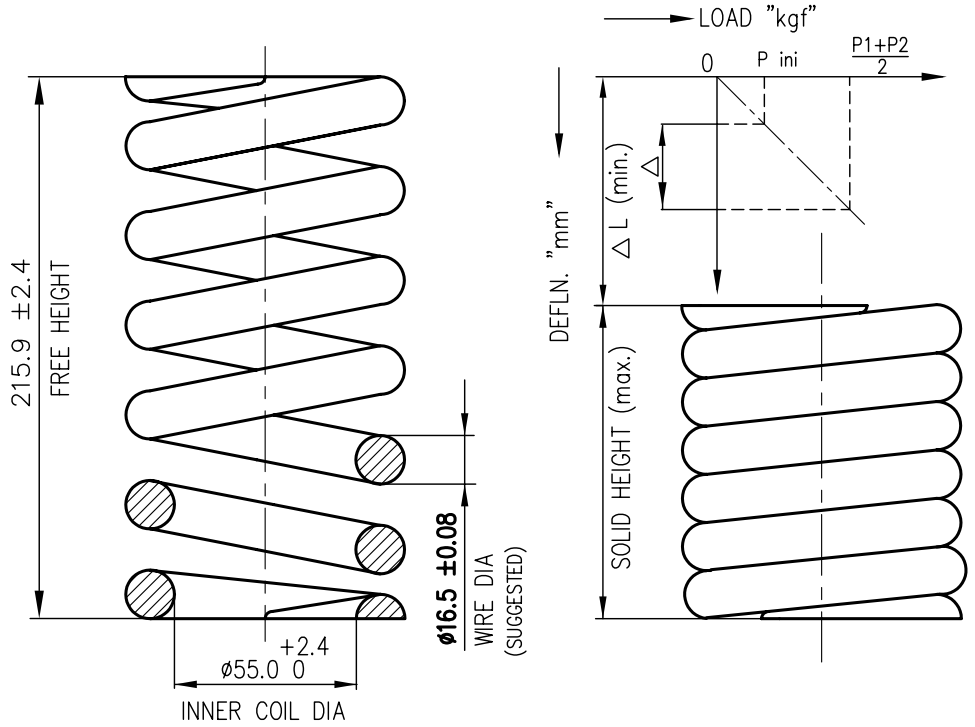
It must not be used directly or indirectly in any way detrimental to the interest of the company.

ALL DIMENSIONS ARE IN MM



ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		**0104100CR**	
02	MAX. OUTSIDE DIA		(mm)	101.6
03	SPRING RATE		(Kg/mm)	24.372
04	AVERAGE DEFLECTION △L min.		(mm)	64.8
05	INITIAL LOADING P_{ini}		(Kgs)	236.8
06	TEST DEFLECTION △		(mm)	45.3
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	1286.5
		P_2 MAX.	(Kgs)	1397.1
08	TILT DEFLECTION		(mm)	55.1

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO. OF COILS	NOS	$8.5^{0}_{-0.5}$
10	SPRING WEIGHT	(Kgs)	3.3
11	PITCH	(mm)	24.9 ±0.8
12	DEVELOPED LENGTH OF ROD	(mm)	1961
13	RAW MATERIAL DIA x LENGTH	(mm)	25 x 2470
14	RAW MATERIAL WEIGHT	(Kgs)	9.5
15	RAW MATERIAL CODE	153274090000	
16	SPRING CODE	**931721670000**	
17	PROCESS OF MANUFACTURE	HOT/~~COLD~~ COILING	

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR **NON IBR** SPRINGS
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERANCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO **PRODUCT ATTEST**: ASTM A322 GR.6150.
4. SPRING VENDOR IS RESPONSIBLE FOR STRESS RELIEVING, TEMPERING AND OTHER HEAT TREATMENTS AND CONTROLS TO INSURE MINIMUM STRESSED SPRINGS.

REV.		REV.	
04	ALTD:	03	ALTD: G.V 04.05.07
	CHKD:		CHKD: E.A 04.05.07
	APPD:		APPD: E.A 04.05.07

DRG. UPDATED & REDRAWN IN CAD, DCP.NO.800666 DT.27.03.2007

	NAME	SIGN	DATE
DRAWN	G.VENKATESWARALU		04.05.07
CHECKED	E.Athiannavi		04.05.07
APPROVED	E.Athiannavi		04.05.07

TITLE: SPRING

DRG No. 4–V–J410–21167 REV. 03

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CORPORATE DRG ID
TP-DG-4-V-J413-21431

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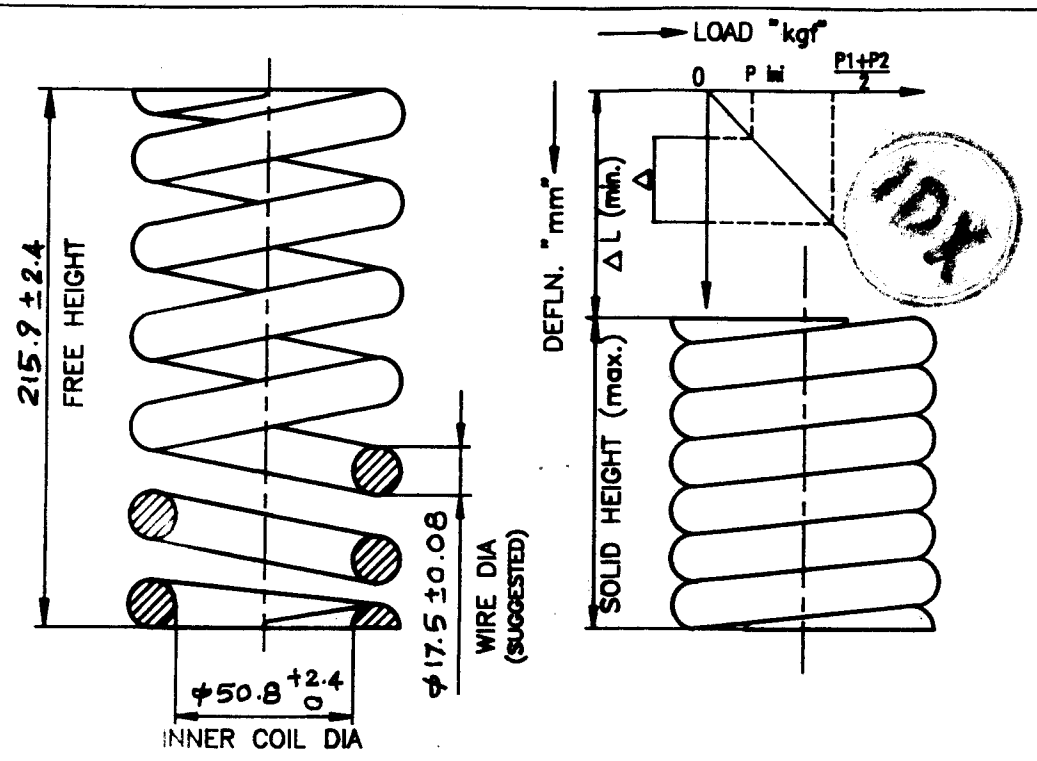


ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		-	01041305Y
02	MAX. OUTSIDE DIA		(mm)	101.6
03	SPRING RATE		(Kg/mm)	35.263
04	AVERAGE DEFLECTION ΔL min.		(mm)	62.1
05	INITIAL LOADING P_{ini}		(Kgs)	328.2
06	TEST DEFLECTION Δ		(mm)	43.4
07	LOAD AT TEST DEFLECTION	P_1 MIN.	(Kgs)	1783.4
		P_2 MAX.	(Kgs)	1936.6
08	TILT DEFLECTION		(mm)	52.8
09	EFFECTIVE NO.OF COILS		NOS	7.2 ±0.25
10	SPRING WEIGHT		(Kgs)	3.5
11	PITCH		(mm)	22.3±0.8
12	DEVELOPED LENGTH OF ROD		(mm)	1870
13	RAW MATERIAL LENGTH		(mm)	2370
14	RAW MATERIAL WEIGHT		(Kgs)	9.1
15	RAW MATERIAL SIZE & CODE		φ25x2370	—
16	SPRING CODE		-	97462616

NOTES:

1. MANUFACTURE & WORKMANSHIP – SHALL BE IN ACCORDANCE WITH APPLICABLE QUALITY PROCEDURE FOR NON-IBR APPLICATION.
2. PROCESS OF MANUFACTURE : [redacted]/COLD COILING
3. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERENCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
4. ACCEPTABLE SPRING MATERIAL TO PRODUCT ATTEST. A276 - TY 316.
5. SPRING SHOULD NOT BE COMPRESSED MORE THAN 51 mm.

ALL DIMENSIONS ARE IN MM

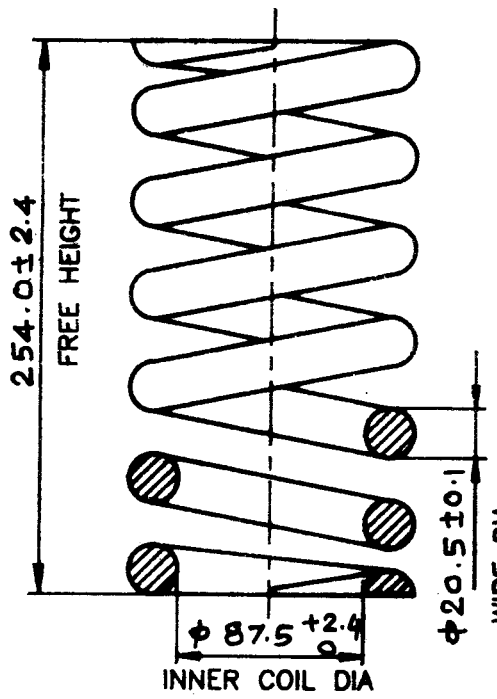
	NAME	SIGN	DATE
DRAWN	MRC / ~~KPL~~		15/3/95
CHECKED	KSR / ~~VPP~~		15/3/95
APPROVED	VM / ~~JGN~~		16/3/95

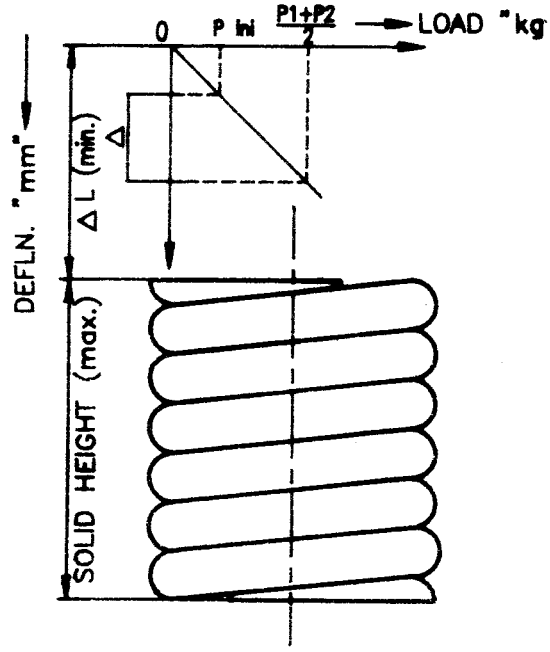
TITLE: SPRING

DRG No. 4-V-J413-21431 REVISION 00

CORPORATE DRG ID
TP-DG-4-V-J413-21431

ALL DIMENSIONS ARE IN MM





ROW	DESCRIPTION		UNITS	VALUE
01	SPRING NUMBER		01063905Y	
02	MAX. OUTSIDE DIA		(mm)	139.7
03	SPRING RATE		(Kg/mm)	17.855
04	AVERAGE DEFLECTION ΔL min.		(mm)	121.1
05	INITIAL LOADING P ini		(Kgs)	324.4
06	TEST DEFLECTION Δ		(mm)	48.8
07	LOAD AT TEST DEFLECTION	P1 MIN.	(Kgs)	1135.7
		P2 MAX.	(Kgs)	1255.2
08	TILT DEFLECTION		(mm)	70.3

ROW	DESCRIPTION	UNITS	VALUE
09	EFFECTIVE NO.OF COILS	NOS	6.8±0.25
10	SPRING WEIGHT	(Kgs)	6.9
11	PITCH	(mm)	33 ±0.9
12	DEVELOPED LENGTH OF ROD	(mm)	2650
13	RAW MATERIAL DIA. x LENGTH	(mm)	φ21×3020
14	RAW MATERIAL WEIGHT	(Kgs)	7.8
15	RAW MATERIAL CODE		—
16	SPRING CODE		974624570000
17	PROCESS OF MANUFACTURE		[redacted]/COLD COILING & STRAIN HARDENED.

NOTES:

1. MANUFACTURE & WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPLICABLE PROCEDURE FOR NON-IBR APPLICATION.
2. DATA GIVEN IN ROWS 11 TO 14 ARE FOR REFERENCE ONLY. SPRING VENDOR TO DECIDE SUITABILITY.
3. ACCEPTABLE SPRING MATERIALS TO PRODUCT ATTEST. ASTM A 276 TYPE 316.
4. SPRING SHOULD NOT BE COMPRESSED BEYOND 70.3 MM.

REV.	ALTD:	REV.	ALTD:
03	CHKD:	02	CHKD:
	APPD:		APPD:

RETRACED & UPDATED.

DCN: SR:0189 7.7.97

	NAME	SIGN	DATE
DRAWN	MRC / [redacted]		7.7.97
CHECKED	KSR / [redacted]		7.7.97
APPROVED	KSR / [redacted]		7.7.97

TITLE: SPRING

DRG No. 4-V-J639-21027 REVISION 02

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CORPORATE DRG ID TP-DG-4-V-J639-21027

CORPORATE DRG ID TP-DG-4-V-J639-21027