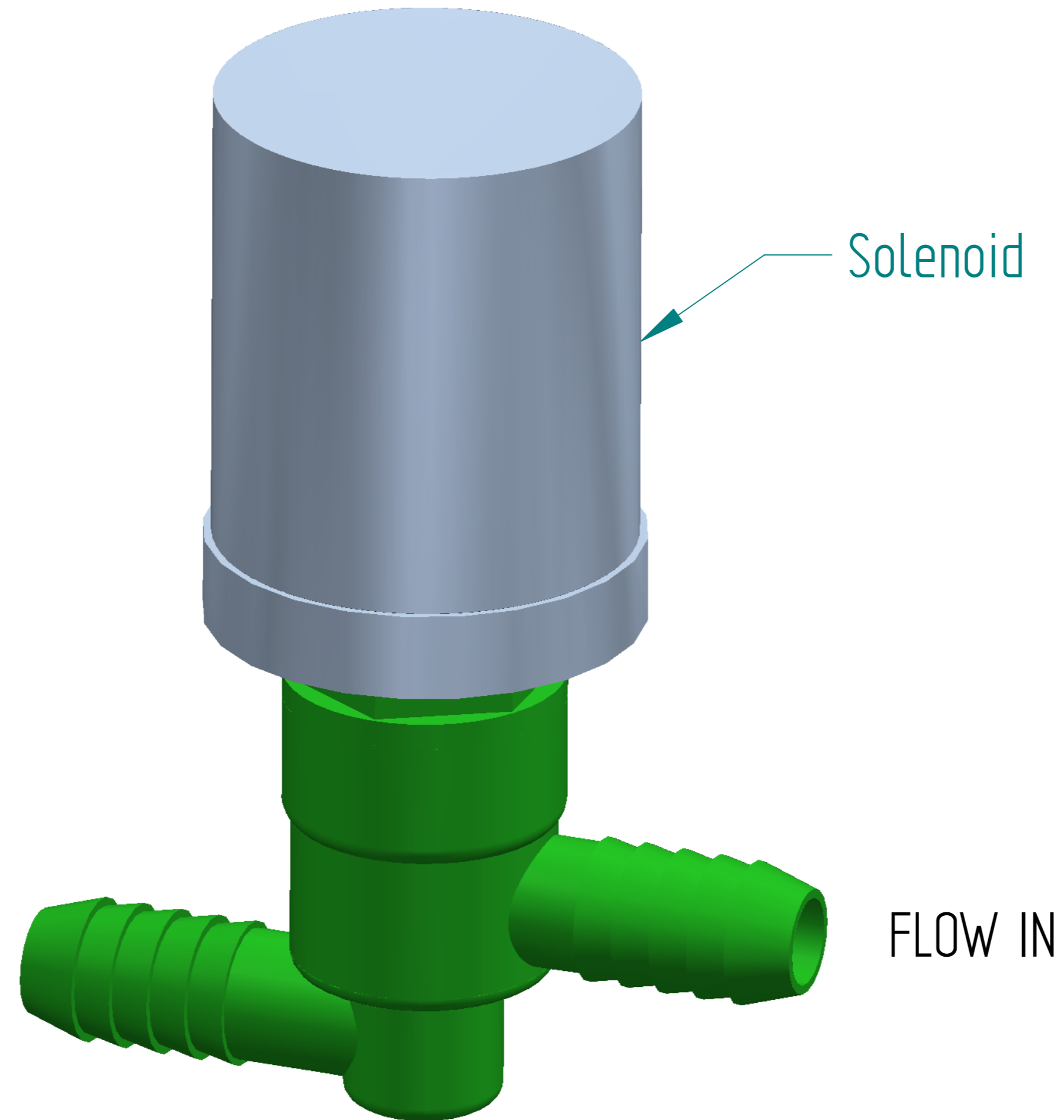


REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED



CONTROLLED
FLOW OUT

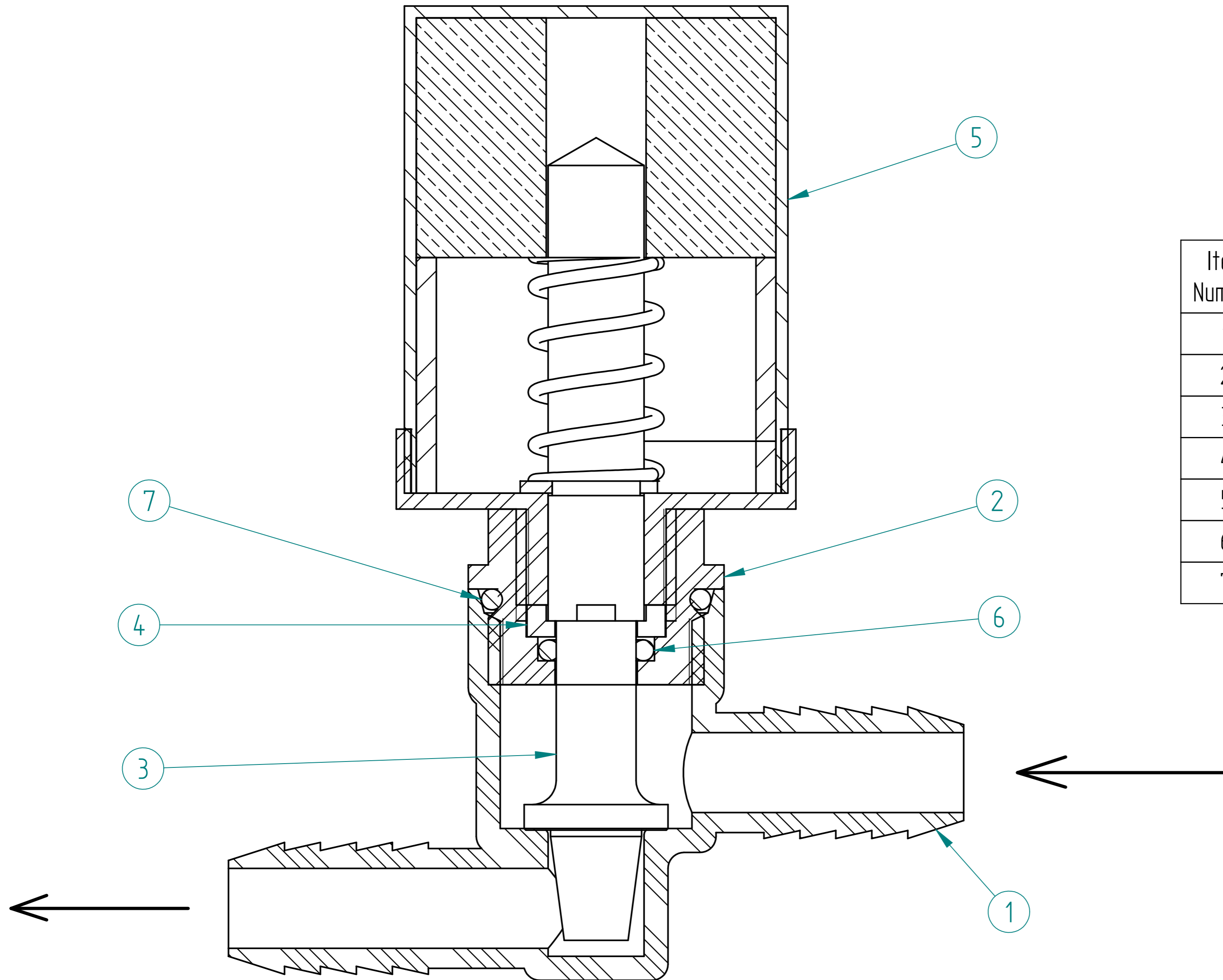
Solenoid

FLOW IN

FLOW CONTROL VALVE

	NAME	DATE	AGRIGEL	
DRAWN	Dan	12/16/10	TITLE	
APPROVED			Flow Control Valve	
MATERIAL			SIZE	DWG NO
TREATMENT			A4	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS			FILE NAME: Flow Control Valve.dft	REV
1st ANGLE ANGLES ±0.1°			SCALE:	WEIGHT:
2 PL ±0.02 3 PL ±0.005			SHEET 1 OF 4	

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED

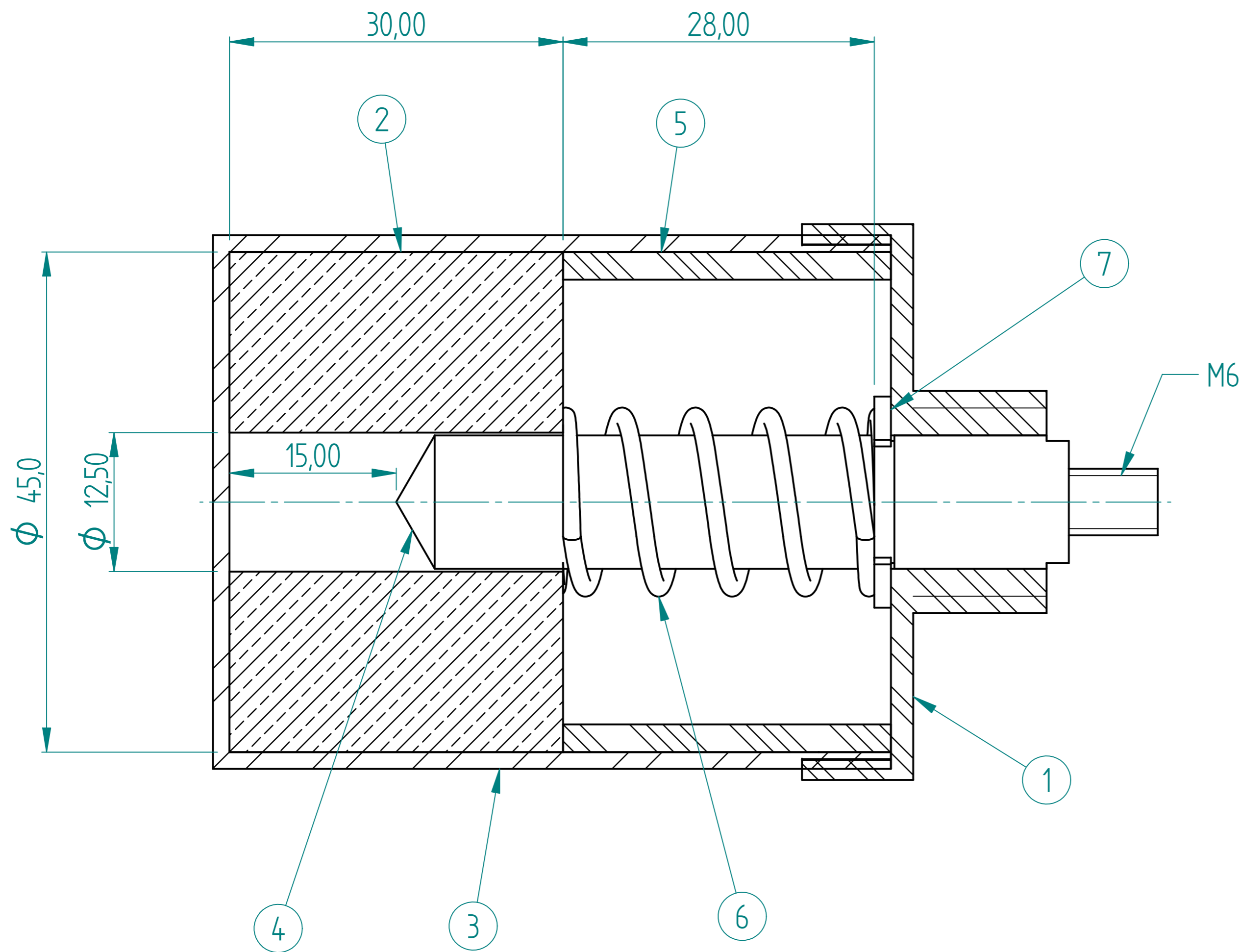


Item Number	Document Number	Title
1		Housing
2		Cap
3		Poppet
4		Washer
5		Solenoid
6	P2-110	O-Ring
7	P2-119	O-Ring

FLOW CONTROL VALVE

	NAME	DATE	AGRIGEL	
DRAWN	Dan	12/16/10	TITLE	
APPROVED			Flow Control Valve	
MATERIAL			SIZE	DWG NO
TREATMENT			A4	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS			FILE NAME: Flow Control Valve.dft	REV
1st ANGLE ANGLES ±0.1°			SCALE:	WEIGHT:
2 PL ±0.02 3 PL ±0.005			SHEET 2 OF 4	

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED



Item Number	Document Number	Title
1		Cap
2		Coil
3		Housing
4		Plunger
5		Spacer
6		Spring
7	E 11	Cir Clip

SOLENOID

	NAME	DATE	AGRIGEL		
DRAWN	Dan	12/16/10			
APPROVED			TITLE Flow Control Valve		
MATERIAL					
TREATMENT			SIZE A4	DWG NO	REV
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS			FILE NAME: Flow Control Valve.dft		
1st ANGLE ANGLES ±0.1°			SCALE:	WEIGHT:	SHEET 3 OF 4
2 PL ±0.02 3 PL ±0.005					

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED

Design And Calculation Report

Compression Spring

STRENGTH VALIDATION: Pass

INPUT DESIGN CONDITIONS

DESIGN INPUT PARAMETERS

SPRING DIMENSIONS

(d) Wire Diameter: 1.60 mm
 Active Coils: 4
 (Do) Outside Diameter: 17.00 mm
 (Lo) Unloaded Length: 32.00 mm
 (Lp) Length at Preload: 28.00 mm
 (Df) Required Deflection: 15.00 mm

Spring Ends: Closed and Ground

MATERIAL PROPERTIES USED FOR CALCULATIONS

Material: Stainless Steel Wire - Grade 3
 Modulus of Rigidity: 71000 MPa
 Density: 7800 Kg/m³

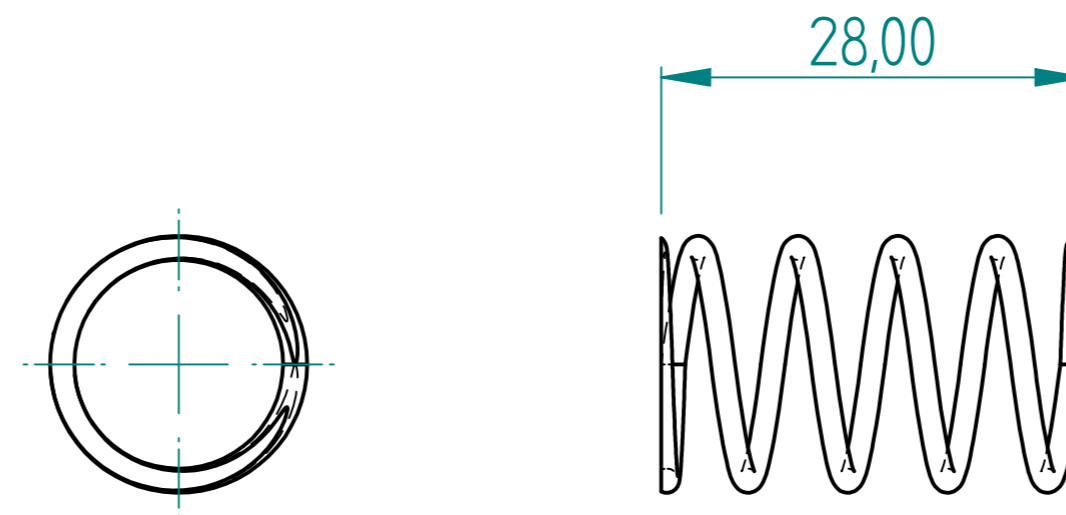
CALCULATE RESULTS

OUTPUT DESIGN PARAMETERS

Spring Index: 9.625
 (Dm) Mean Diameter: 15.40 mm
 (Di) Inside Diameter: 13.80 mm
 (Lf) Length at Applied Load: 13.00 mm
 (Fp) Preload: 15925.245 mN
 (Ff) Applied Load: 75644.915 mN

STRENGTH VALIDATION

(P) Pitch of Unloaded Spring: 7.60 mm
 Deflection at Preload: 4.00 mm
 Total Deflection: 19.00 mm
 Spring Constant: 3.981
 Wahl's Stress Factor: 1.151
 Shear Stress at Preload: 175471.557 kPa
 Shear Stress at Applied Load: 833489.896 kPa
 Tensile Strength: 1720000.000 kPa
 Permissible Shear Stress: 860000.000 kPa
 (Ls) Solid Length: 12.43 mm
 Space between Active Coils: 6.00 mm



SPRING PRELOADED

	NAME	DATE	AGRIGEL		
DRAWN	Dan	12/16/10			
APPROVED			TITLE Flow Control Valve		
MATERIAL					
TREATMENT			SIZE A4	DWG NO	REV
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS			FILE NAME: Flow Control Valve.dft		
1 st ANGLE 2 PL ±0.02 3 PL ±0.005			SCALE:	WEIGHT:	SHEET 4 OF 4