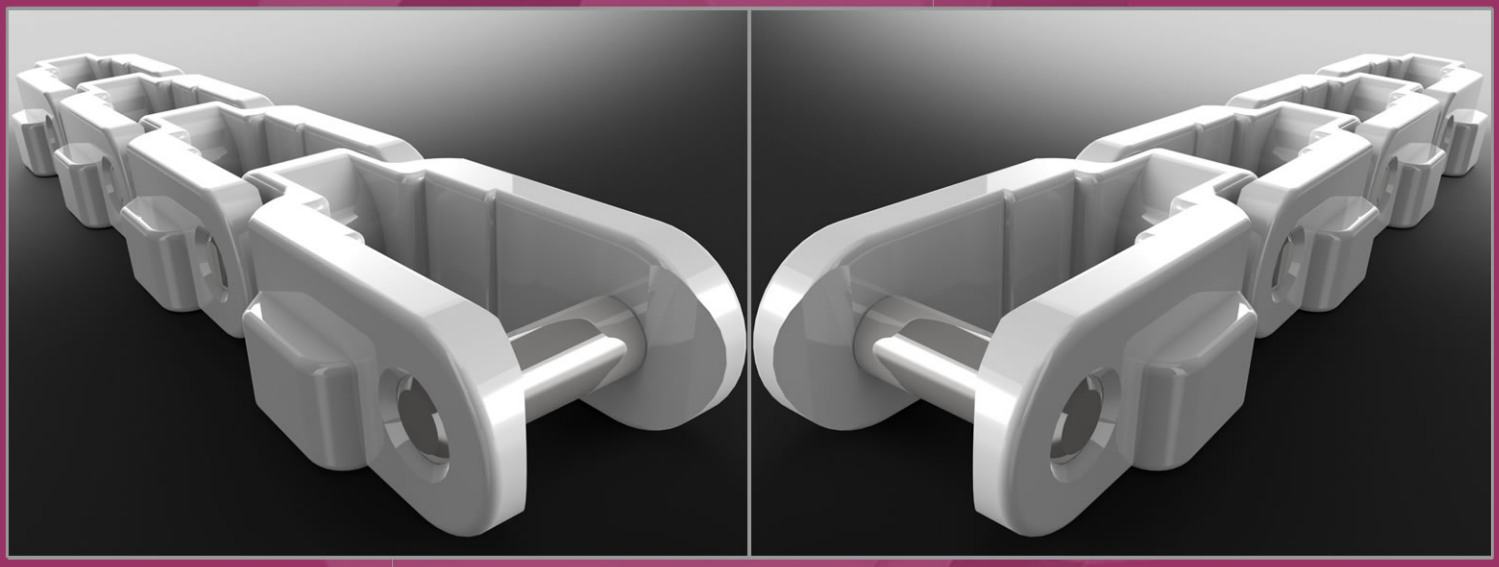
EWART CHAIN LTD
GLOBAL SUPPLIER

Plastic / Process Chains

EWART CHAIN Ltd est 1880



Ewart Chain Ltd

THE BEST KNOWN CHAIN BRAND IN THE WORLD

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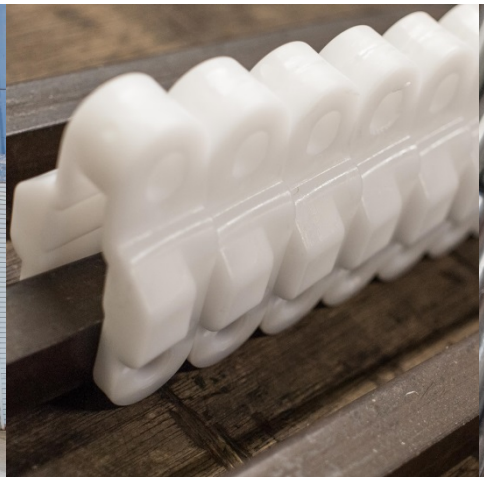


In eighty countries throughout the world the name EWART is synonymous with high quality power transmission conveying and elevator chain, manufactured from a variety of materials which include specialised alloy steels suitable for heat treatment, malleable iron and plastic/acetal materials. Ewart has been able to combine the experience of a traditional precision chain manufacturer with that of polymer technology and also manufacture a range of plastic/acetal chains and ancillary products that can offer both the service and a quality product, which already has a track record of achievement and success, to our customers. Acetal materials are available in a comprehensive family of injection moulded grades, each designed to solve a particular customer requirement dependent on industrial and process applications. The material is available in a range of colours all in compliance with food industry regulations.

Contents

Ewart - PLASTIC CHAIN - What we can offer you…

EWART has been able to combine the experience of a traditional precision manufacture with that of polymer technology, allowing us to manufacture a range of plastic / acetal chains and ancillary products that offer extremely high quality.

Our Range

Numerical Product Number		Numerical Product Number
CC600		CC631DS
CC600S		CC600FC
CC600D		CC600DC
CC600DS		CC1400
CC600DALUG		CC1400D
CC600DB		CC1400S
CC600DBK		CC1400DAS
CC600C		CC1400R
CC600SEX2		CC1400DAR
CC600F		CC1400FTS
CC600FS		CC1400FTSCHAM
CC631D		3” Pitch Pintle Chain

Benefits

The benefits of acetal materials used for chain manufacture in industrial and process applications are :

- High tensile strength and stiffness
- High tensile and flexural moduli
- Economic installation
- Long life
- Maintenance free
- Low coefficient of friction
- Corrosion resistance
- Practical impact strength
- Minimal moisture absorption
- Hygiene for the food industry
- Excellent natural resilience
- Low operating costs
- High load capacity
- Noise reduction
- Light weight
- Excellent wear characteristics
- Good dynamic fatigue strength
- Natural lubricating
- Good dimensional stability
- Resistance to attack by most chemicals and solvents

An important feature in the Ewart designed acetal chains is that of pin manufacture. Pins are available in both a selection of materials and types of retention. Whereas food quality stainless steel pins are fitted as a standard to chains, sheradised carbon steel and alternative acetal materials are also available upon request. Types of pin retentions available include snap fit, riveted, circlip and knurled. The selection of both pin material and retention will be dependent on the application or user preference.

Applications

Typical applications for the range of acetal and malleable iron crate conveyor chains in the process industries are :-

- Breweries
- Crate conveying
- Crate washers
- Pharmaceuticals
- Fish processing
- Liquid packaging
- Gas bottling conveying
- Food processing
- Keg washers
- Packaging
- Bucket elevators
- Water and sewage treatment
- Dairies
- Bakeries
- Agricultural applications
- Timber
- R.F application

Industrial Applications

General industrial applications include :-

- The motor industry
- Robotic machining and assembly lines
- Industrial washing plants
- Agricultural machines
- The sugar industry
- The timber industry

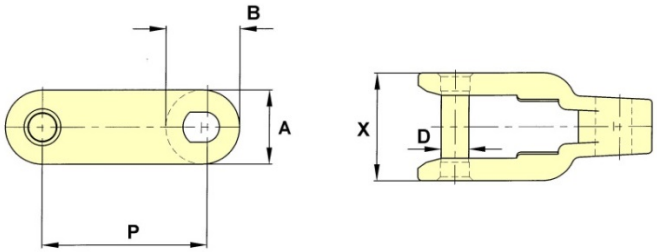
As wide as the Ewart range of chains is, there are still many applications which require special considerations.

We have the experience to work with original machine manufacturers, and, in conjunction with the technical expertise which is available from our acetal machine suppliers, the Ewart design engineers are able to offer a service to industry worldwide.

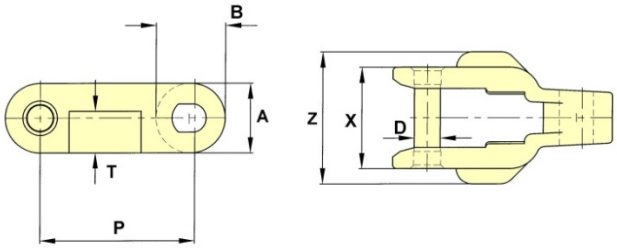
CC600 Chain

Technical Data

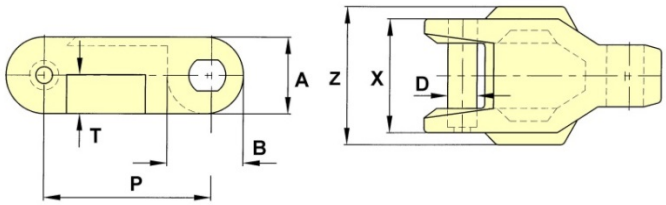
Maximum operating speed		35m/min
Maximum product weight	-Single strand	45Kg/m
	-Double strand	90Kg/m
Maximum conveyor length	-Fully laden	18m
	-Partly laden	25m
Maximum incline (dry conditions		5°
Operating temperature		-40°C to +90°C
(Intermittent exposure)		105°C



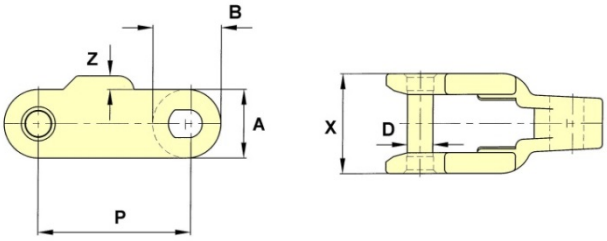
The CC600 chain, moulded in tough acetal, requires no lubrication, is quiet, corrosion free, and can be steam cleaned. Although primarily a straight running chain, it will flex around corners down to 30in radius.



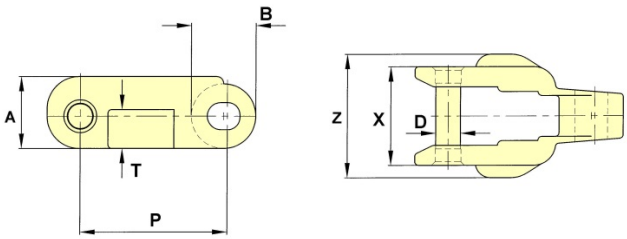
The CC600D chain, fitted with tracking lugs, is recommended for applications where it is necessary for the conveyor to flex around corners not less than 30in radius.



The CC600DB chain designed with a larger carrying surface to solve product slippage problems. Safer where personnel have access to conveyor surface.



The CC600F chains unique design can extend chain life or be used as a semi positive pusher up inclines. Single links pitched to customer requirements into CC600 and CC600D chains.



The CC631D chain is designed to increase wear life over standard CC600 Series

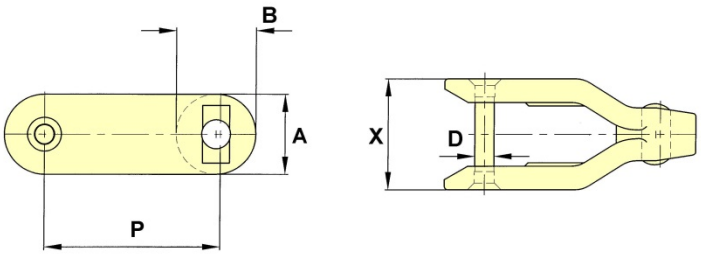
Chain No	Pitch P	Allow Load	U.T.S	Pin Dia D	Available Pin Type	Sidebar Depth A	B	T	X	Z	Min Turn RAD
CC600	2.500	1,850	3,400	0.44	S,C	1.13	1.13	-	1.65	-	30
CC600D					S,C			0.67	1.65	2.12	30
CC600DB					K			0.58	1.69	2.05	30
CC600F					S,C			-	1.62	0.22	30
CC631D	2.500	1,470	2,310	0.44	S	1.22	1.10	0.66	1.67	2.09	21

Pin types available: S = Snap fit; C = Circlip; K = Knurl

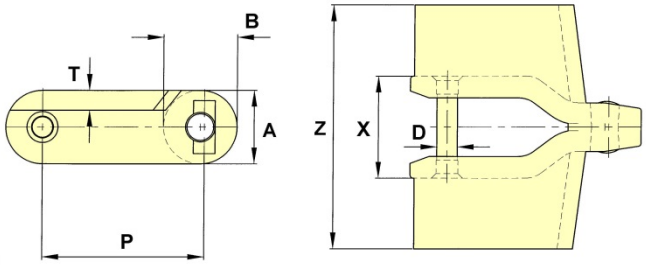
CC1400 Chain

Technical Data

Maximum operating speed		45m/min
Maximum product weight	-Single strand	55Kg/m
	-Double strand	110Kg/m
Maximum conveyor length	-Fully laden	25m
	-Partly laden	36m
Maximum incline (dry conditions		5°
Operating temperature		-40°C to +90°C
(Intermittent exposure)		105°C

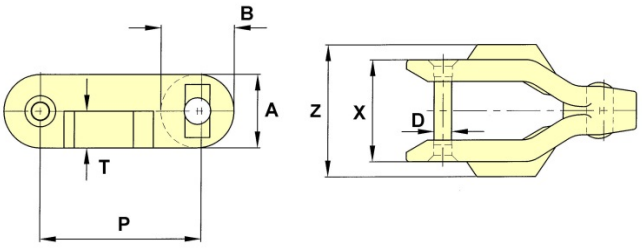


The heavy duty CC1400 is particularly suitable for handling steel crates, kegs, boxes, trays etc, in breweries, dairies, warehouses, cold storage complexes, bottling plants and many other industrial applications.



The advantages of the CC1400 flat top chain include :-

- Increased wear area resulting in reduced unit loading
- Longer life due to increased surface contact area
- Increased product support
- More hygienic due to tracking arrangement
- Designed for multi application purposes

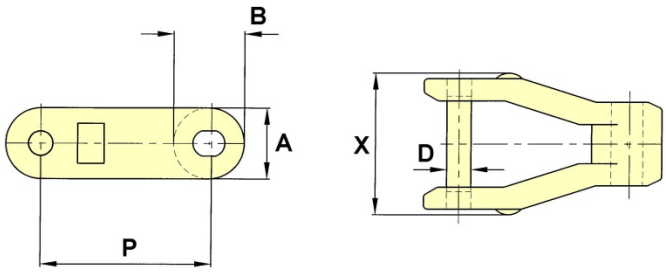


The CC1400D is recommended where it is necessary to negotiate tighter bends, down to a minimum of 26in.

Chain No	Pitch P	Allow Load	U.T.S	Pin Dia D	Available Pin Type	Sidebar Depth A	B	T	X	Z	Min Turn RAD
CC1400	3.25	2,640	5,000	0.38	S,R	1.48	1.48	-	2.07	-	26
CC1400D					S,R			0.74	2.07	2.65	26
CC1400FT					S			0.40	2.00	4.88	48

Pin types available: S = Snap fit; R = Rivet

3” Pitch Pintle Chain

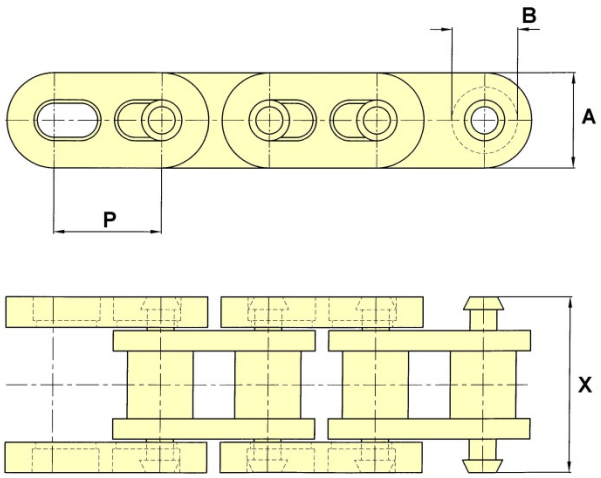


The 3” pitch acetal pintle chain is specially designed for multi use applications.

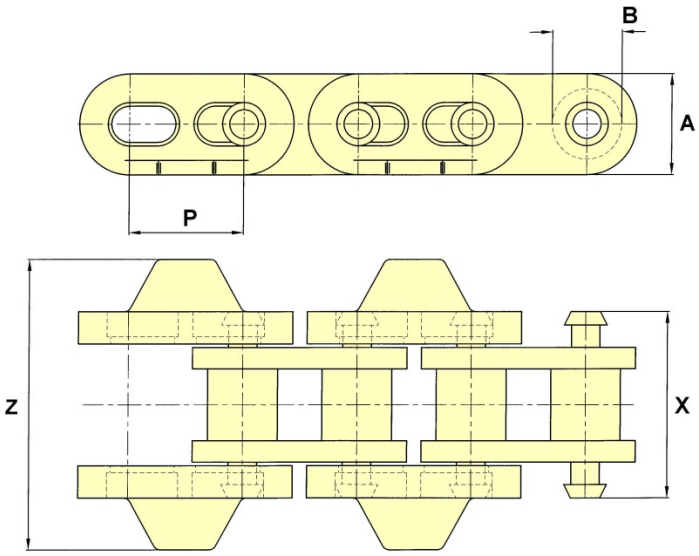
Chain No	Pitch P	Allow Load	U.T.S	Pin Dia D	Available Pin Type	Sidebar Depth A	B	T	X	Z	Min Turn RAD
3” pitch	2.500	-	4,350	0.44	S	1.26	1.26	-	2.52	-	-

½” Pitch acetal Chain

½” pitch acetal straight running.



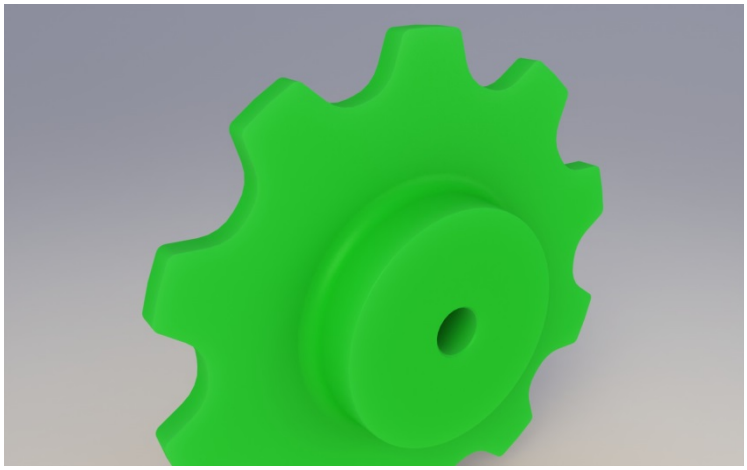
½” pitch acetal side flexing.



The ½” pitch acetal chain is for use within the bakery and general food applications.

Chain No	Pitch P	Sidebar Depth A	Bush Dia B	X	Z
½” Straight running	2.500	0.44	0.31	0.82	-
½” Side Flexing				0.82	1.27

Sprockets



Sprockets for the range of chains covered in this brochure are manufactured in either cast iron, UHMW or Nylacast.
NEW the introduction of Nylacast (green) materials to the Ewart product range offers the following benefits :

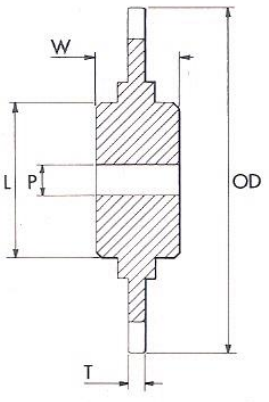
- Exceptional resistance to wear and abrasion
- Low coefficient of friction
- Self lubricating
- Non porous
- High impact strength
- Smooth hard surface
- Does not corrode
- Excellent resistance to a wide range of chemicals
- Acoustic advantages

CC600 Sprockets

Teeth	PCD		O/D		T		P		L		W	
	In	mm	In	mm	In	mm	In	mm	In	mm	In	mm
8	6.53	165.86	6.75	171.45	0.344	8.74	0.75	19.05	3.75	95.3	2.00	50.8
10	8.09	205.49	8.41	213.61								
12	9.66	245.36	10.05	255.24								
14	11.24	285.50	11.67	296.42								
20	15.98	405.80	16.50	419.10								

CC1400 Sprockets

Teeth	PCD		O/D		T		P		L		W	
	In	mm	In	mm	In	mm	In	mm	In	mm	In	mm
7	7.49	190.25	8.25	209.50	0.688	17.5	0.75	19.05	4	101.6	2.5	63.5
8	8.49	215.66	9.40	238.76								
9	9.50	241.30	10.50	266.70								
10	10.52	267.20	11.52	292.61								
17	17.69	449.33	18.45	468.63					6	152.4		



Technical Details

Materials used in manufacture

Link Materials

All links are moulded from high quality acetal engineering plastic, and all the chains listed are now available in standard and low friction grades. Chains are also manufactured in a variety of special materials to suit end uses where the chemical or physical conditions are particularly harsh.

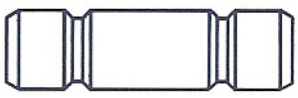
Pin Materials

Food quality stainless steel pins are fitted as standard in all of the acetal chains listed in this catalogue. Plastic or zinc plated carbon steel pins for the plastic range of chains are available as an option upon request.

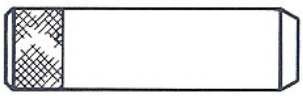
Pin Styles

A choice of pin styles are available on the chains specified. The technical data for each range of chains indicate the choice of pin styles available.

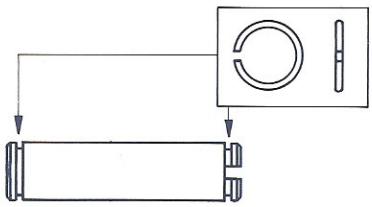
Snap in pin (S)



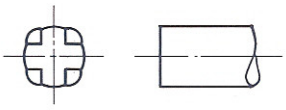
Knurled pin (K)



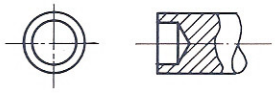
Circlip pin (C)



Rivet pin (R)



Stake rivet



Spun rivet

Chemical resistance chart of acetal material

Chemical	Resistance at 23°C
Acetic acid 20%	B
Acetone	B
Ammonia	A
Beer	A
Beverages, Soft drinks	A
Benzine	A
Bleach	C
Bromine water	C
Carbon tetrachloride	A
Chlorine	C
Citric acid	B
Formaldehyde	A
Formic acid	C
Glucose	A
Hydraulic fluid	A
Hydrochloric acid	C
Hydrocyanic acid	C
Hydrogen peroxide 3%	A
Iodine	A
Kerosene	A
Milk	A
Motor oil	A
Nitric acid	C
Oils (vegetable and mineral)	A
Phosphoric acid 25%	C
Soap water	A
Sodium hydroxide 10%	A
Sodium hypochloride (bleach)	C
Sulphuric acid 3%	A
Sulphuric acid 10%	C
Vinegar	B
Water (fresh and salt)	A

Key

A None or very little attack or distortion.

B Slight attack or distortion dependant on use.

C Bad attack, unsuitable for use in this enviroment

Note

Whilst the above table only shows the popular chemicals, we would be pleased to assist where specific chemicals are not tabulated.

Chain selection and performance

Chain pull for straight running and horizontal conveyors

CP = Cl x Fbf x (Pw + 2Cw) + (Pw x Fpf x Sl)

CP	Chain pull
Cl	Length of conveyor in metres
Fbf	Friction between chain and conveyor bed (see chart A)
Pw	Product weight per metre of chain
Cw	Chain weight per metre of conveyor
Fpf	Friction between product and chain surface (see chart A)
Sl	Maximum length (in metres) of conveyor where product slippage/accumulation occurs

Chain pull for horizontal conveyors with bends

CP_1 = CP x Tf x Number of bends on conveyor length

CP	Chain pull
Tf	Turn factor obtained from chart B

Calculation factors

Chart A – Typical friction values

	Linear coefficient of friction
Friction between chain and conveyor bed (Fbf)	
Dry chain against stainless steel	0.22
Wet chain against stainless steel	0.13
Dry chain against polyethylene	0.27
Wet chain against polyethylene	0.10
Friction between product to be conveyed and chain (Fpf)	
Metal cans	0.18
Plastic cartons	0.20
Cardboard	0.30
Wax board	0.35

Chart B – For CC600 and CC1400 chain

Turn angle (degrees)	30	45	90	180
Tf	1.2	1.4	1.5	2.0

Curves should be as far away from the head shaft as possible.

Corrected chain pull

Previous chain pull calculations are based on standard factors regarding temperatures and duty factors. If the chains are to be operated in abnormal conditions, it is suggested the following be incorporated into chain pull calculations. Corrected chain pull will be:

CCP = CP x Ft x Fd

CCP	Corrected chain pull
Ft	Temperature control factor (see chart C)
Fd	Service duty factor (see chart D)

Chart C – Temperature control Ft

-40°C	to -20°C		0.80
-20°C	to -0°C		0.90
0°C	to +60°C		1.00
+60°C	to +90°C		1.50
+90°C	to +105°C	-Dry	2.00
		-Wet	2.67

Chart D – Duty factor Fd

Steady	1.00
Stop/Start occasionally	1.25
Stop/Start 6 per hour	1.50
Stop/Start 12 per hour	1.75
Stop/Start frequently	1.50

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